Route 2 Improvements from Route 111 in Acton to Baker Avenue in Concord: A Feasibility Study

A report produced by the Central Transportation Planning Staff for the Massachusetts Highway Department

Route 2 Improvements from Route 111 in Acton to Baker Avenue in Concord: A Feasibility Study

Authors
Chen-Yuan Wang
with
Efi Pagitsas *and* Mark Abbot
and contributions from
Hasmukh Patel, MassHighway
Stanley Wood, MassHighway

Graphics
Kate Parker

Photography
Carol Gautreau Bent

Cover Design
Jane M. Gillis

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Central Transportation Planning Staff
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2020 AM Peak Hour Model: Case Study 3 (Alternative 5 with Cul de Sac at Wetherbee Street)

2020 PM Peak Hour Model: Base Case (Alternative 5)

2020 PM Peak Hour Model: Case Study 1 (Alternative 5 with Bridge and Right-Turn-Only Access to Route 2 at School/Wetherbee Streets)

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INTRODUCTION

In late 1999, the Route 2 Corridor Advisory Committee (CAC) requested that MassHighway initiate a feasibility study analyzing the traffic and other impacts of alternative improvements at the Concord Rotary in Concord and other locations along Route 2 in Acton. This study has recently been concluded. It has examined traffic issues along Route 2 and local roads in Acton and Concord, analyzed numerous improvement alternatives, and identified three design alternatives for grade separation of the Concord Rotary. The improvements aim at mitigating the traffic congestion along Route 2 and segments of local roads in the study area (see Figure 1). The three preferred alternatives have been accepted by the Route 2 CAC, which oversaw the development of the project. Although much work remains to be done in terms of formal environmental assessment of improvements, design, and eventual construction, the end of the conceptual planning phase has been reached.

This report documents all of the analyses and results of the feasibility study. The body of the report summarizes the analysis methods and some key results, while the bulk of the data and results are provided in the appendices, which principally consist of technical memoranda produced during the course of the study.

This study was funded by MassHighway and was conducted by a MassHighway–Central Transportation Planning Staff (CTPS) team that interacted with the Route 2 CAC throughout the study period. CTPS is the staff of Boston Metropolitan Planning Organization. In this study , its role was to develop traffic forecasts and assist MassHighway with developing, testing, and evaluating alternative improvements.

STUDY PARTICIPANTS

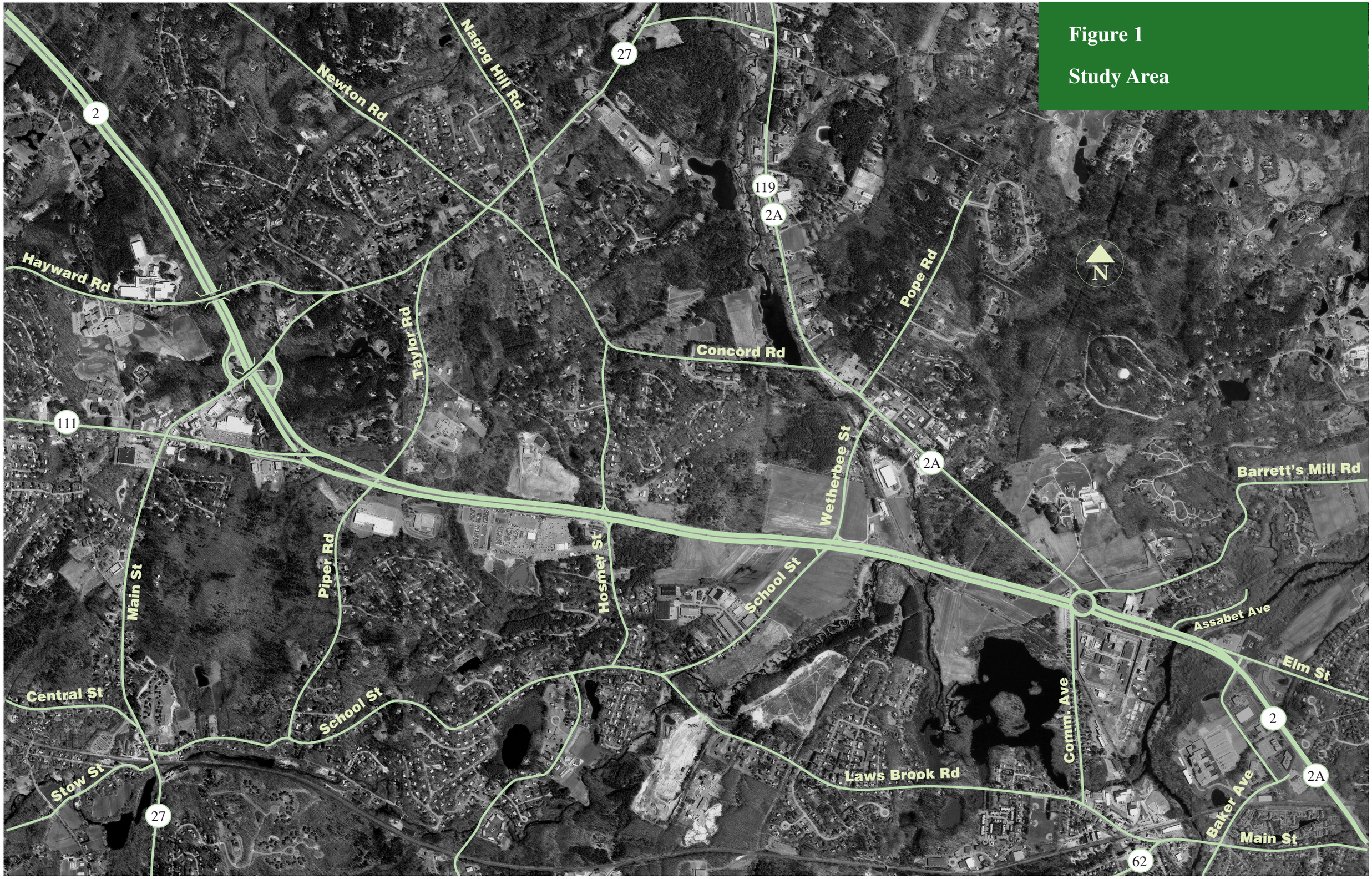
The Route 2 CAC, which meets four times a year and is chaired by the Acting Director of MassHighway Planning, provides guidance, coordination, and public participation assistance regarding planning, design, operations, and construction issues along Route 2 in Lincoln, Concord, and Acton. In addition to being instrumental throughout all the steps of the present study, the CAC monitored the preparation of the environmental documents for Crosby Corner improvement project, oversaw Route 2 median project, and has attended to many other operations-related concerns along Route 2.

During this study, the members of Route 2 CAC included:

Susan C. Fargo, State Senator
Pam Resor, State Senator
Jay Kaufman, State Representative
Cory Atkins, State Representative
Acton town officials
Concord town officials
Lincoln town officials
Acton, Concord, and Lincoln citizens
Massachusetts Department of Public Safety
Massachusetts State Police
Massachusetts Correctional Institute
Metropolitan Area Planning Council
MassHighway
Central Transportation Planning Staff
MassHighway consultants

Figure 1

Study Area



PUBLIC PARTICIPATION

In addition to meeting with the Route 2 CAC four times a year, the MassHighway–CTPS project team presented the study findings at two public meetings. The first was on February 4, 2002, during a scheduled meeting of the Acton Board of Selectmen. About 100 citizens were in attendance during the presentation and question/answer period. The second was on February 19, 2002 during a scheduled meeting of the Concord Board of Selectmen with approximately 75 citizens in attendance.

A summary of the public participation results is included in Appendix A.

EXISTING ISSUES AND CONSTRAINTS

Route 2, Acton

- Congestion and delay along Route 2, largely due to poor operations at the Concord Rotary
- Congestion and safety issues at the Route 2/Piper/Taylor signalized intersection
- Lack of good access to/from Route 2
- Cut-through traffic on local roads due to Route 2 congestion
- Limited Route 2 crossing opportunities, especially for emergency response

Route 2, Concord

Traffic Operations and Safety

- High Route 2 and 2A traffic volumes that conflict at the rotary
- Unbalanced traffic flows at the rotary
- High incidence of crashes at the rotary
- Cut-through traffic along local roads parallel to Route 2

Right-of-Way and Environmental Constraints

- Massachusetts Correctional Institute, including associated parking lot
- Massachusetts State Police Concord Barracks
- Massachusetts Maintenance Depot
- Concord Municipal Light Plant
- Commercial property and residences
- Historic properties
- Farmland
- Wetland areas
- Cemetery

STUDY OBJECTIVES

The purpose of this study was to identify improvements at the Concord Rotary in Concord and locations along Route 2 in Acton that would accomplish the following objectives:

- Reduce traffic congestion on Route 2 and local roads
- Improve pedestrian circulation and safety
- Reduce delays on Route 2 and local roads
- Reduce cut-through traffic on local roads
- Improve local access to and across Route 2
- Improve emergency access across Route 2
- Maintain Massachusetts State Police and Massachusetts Correctional Institute access to Route 2

The following sections summarize the various steps, which were followed in developing and evaluating the alternative improvements.

DATA INPUT AND MODEL DEVELOPMENT

The primary tool used in this study to analyze existing traffic conditions and conditions in future years, without and with proposed roadway improvements, was a transportation planning model set implemented in the TransCAD software[1]. AM and PM peak hour models were assembled for the base year 2000 and for future year 2020 (the peak hours were defined as 7:00–8:00 AM and 5:00–6:00 PM).

The basic inputs for the traffic simulation models are divided into three categories:

- Traffic counts
- Socioeconomic data
- Network data

These model inputs are described in greater detail below.

Traffic Counts

Before transportation planning models are used, they must be calibrated to existing roadway traffic conditions. This is done by using them to "predict" present-day traffic volumes and comparing the modeling results with actual traffic counts and adjusting the model, as necessary. The traffic counts used should be as recent as possible, preferably no more than two years old. For the present study, 24-hour automatic traffic recorder (ATR) counts and AM and PM peak period manual turning movement counts (MTMCs) performed during 2000 were used. The sources for these counts, many of which were conducted especially for this study, were MassHighway, CTPS, and reports of private consultants written on behalf of MassHighway or towns.

Socioeconomic Data

A second category of inputs to the TransCAD planning model comprises data on population and employment in the study area. The data need to be at the level of traffic analysis zones (TAZs, also called traffic zones).

In the present study, these data were already available for 2000 and 2020 from the CTPS regional model set. The population and employment data in the regional model were developed by Metroplitan Area Planning Council and were used to create the regional trip

[1] TransCAD Version 3.60 (1999) and 4.0 (2002) , Caliper Corperation, Newton, Massachusetts

tables. The study area trip tables were then extracted from the regional model and used as "seed" tables to calibrate the model set to existing 2000 operating conditions.

Network Data

The third input to the TransCAD model is an inventory of all the roadways in the study area. Roadway free-flow speeds, number of lanes, distances between intersections, and other physical characteristics are included, together with such variables as whether a roadway is one-way or two-way, whether turn prohibitions exist at certain locations, and the impacts of traffic signals or stop signs. CTPS staff initially used the regional model network to "window-out" the network covering the study area. This included the area, in the east-west direction, from just east of Baker Avenue to just west of Route 27 in Acton; in the north-south direction, from just south of School Street/Laws Brook Road in Acton and Concord to just north of intersection of Routes 2A/119/27 in Acton. In order to create an accurate roadway network, staff did all the necessary field reconnaissance to verify network roadway characteristics and operating conditions.

EVALUATION CRITERIA

In collaboration with the Route 2 CAC, the following criteria were used to evaluate the alternative improvements:

- Minimize cut-throughs
- Minimize delay
- Improve safety
- Improve local and emergency access
- Minimize environmental impacts
  - Historic
  - Wetland
  - Agricultural
  - Right-of-way
  - Open space
- Minimize visual impacts
- Minimize construction costs
- Minimize traffic disruption during construction

PACKAGES OF IMPROVEMENTS

Seven design alternatives (Alternatives 1 through 7) were developed and tested for Concord Rotary alone. In addition, five alternative packages of improvements (Alternatives 1A, 1B, 1C, 5A, and 5B) that apply to locations in Acton and the rotary were developed and evaluated. The five packages contain various possible combinations of grade separations, collector/distributor roads, cul-de-sacs, and other features at various Route 2 crossings in Acton. The first three (Alternatives 1A, 1B and 1C) assume that the rotary would be replaced by a traffic signal; the latter two (Alternatives 5A and 5B) assume that Alternative 5, a partial diamond/cloverleaf design grade separation, would replace the rotary.

The seven Concord Rotary design alternatives are described in Appendix B. The five Route 2 improvement packages, with their composite improvement elements, are shown in Appendix C. AM and PM peak hour traffic forecasts for the improvement packages were produced for the year 2020 to serve as a screening tool for the assessment of the improvement measures under consideration. They are presented in Appendix D.

In addition to the above five composite packages, Acton requested that three alternative roadway design treatments at Route 2/Wetherbee Street be analyzed[2] for traffic impacts. All three assume Alternative 5 at the rotary. The results of these analyses are presented in Appendix F.

[2] See Town of Acton letter to Kenneth Miller, MassHighway, June 27, 2002, contained in Appendix A.

EVALUATION OF IMPROVEMENTS PACKAGES

Once all of the roadway improvement measures under consideration had been incorporated into one or more packages and tested with respect to traffic impacts, the measures were rated according to the evaluation criteria described earlier, that were approved by the Route 2 CAC. The MassHighway–CTPS study team rated the various benefits and impacts of each alternative as low, medium, or high (high being the best of a benefit, low the best of an impact). The evaluation process included empirical analysis, such as that which was based on the traffic forecasts and the estimated costs, and also involved less quantifiable assessment, such as for environmental impact and economic development. A summary of the evaluation results follows, while details may be found in Appendix E.

In Appendix E, Table E-1 shows the evaluation results for the seven design alternatives for Concord Rotary. Table E-2 shows the evaluation results for the five composite alternative packages covering locations in Acton as well the rotary. The additional three alternative packages proposed by Acton were not included in the evaluation tables, as they yielded traffic impacts similar to those of Alternative 5.

SUMMARY OF EXPECTED BENEFITS AND IMPACTS

Alternatives 1 through 7 and packages 1A, 1B, 1C, 5A, and 5B have potential benefits and impacts whose levels depend on the features of the specific option. The following general observations can be made:

- Benefits and impacts of Alternatives 1 through 7, which focus on the area immediate to the Concord Rotary only, are substantial but generally limited to the vicinity of West Concord.
- Benefits and impacts from Alternatives 1A, 1B, 1C, 5A, and 5B would affect locations in West Concord and Acton.
- Improvements in the cut-through problem along Laws Brook Road, Piper/Taylor roads, Hosmer Street, and Route 2A south of Concord Road would be produced by the rotary design alternatives.
- Reductions in delay along Route 2, Route 27, and local roads (where different levels of reduction in cut-through traffic are expected) would be produced by the Route 2 improvement packages.
- Improvement in driver safety along Route 2 and in accessing and crossing Route 2 would be produced by redesigning the existing substandard on- and off-ramps.
- Improvements in pedestrian circulation would be produced by those alternatives that include a relocated Commonwealth Avenue.
- Improved opportunities for local and emergency-response access to and crossing of Route 2 would be produced by those alternatives with bridge or interchange options.
- As Route 2 access opportunities increase, traffic along roads such as Hosmer, School, and Wetherbee streets may also increase.
- ROW, wetland, historic, open space, and agricultural impacts vary with the alternative.
- Cost would range between $4 million and $50 million.
- Construction staging would be required in most cases.

Tables 1 and 2 summarize the final ratings of the various alternatives that were tested.

TABLE 1
Preliminary Comparison of Concord Rotary Design Alternatives
Summary of Ratings
CONCORD

Alternative #	Benefits		Impacts					
	Improve Traffic Operations	Improve Safety	Historic Impacts	Wetland Impacts	Agricultural Impacts	Right of Way Impacts	Visual Impacts	Construction Cost and Traffic Disruption
No Build	NO BENEFIT	NO BENEFIT	NO IMPACT	NO IMPACT	NO IMPACT	NO IMPACT	NO IMPACT	NO IMPACT
1	LOW .	LOW	LOW	LOW	LOW	LOW	LOW	LOW Rough Cost Estimate LOW Traffic Disruption
2	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	HIGH	HIGH	HIGH Rough Cost Estimate High Traffic Disruption
3	MEDIUM	MEDIUM	LOW	LOW	LOW	MEDIUM	HIGH	MEDIUM Rough Cost Estimate MEDIUM Traffic Disruption
4	MEDIUM	MEDIUM	LOW	MEDIUM	HIGH	MEDIUM	HIGH	MEDIUM Rough Cost Estimate HIGH Traffic Disruption
5	HIGH	HIGH	MEDIUM	LOW	HIGH	MEDIUM	MEDIUM	MEDIUM Rough Cost Estimate MEDIUM Traffic Disruption
6	LOW	MEDIUM	LOW	LOW	HIGH	MEDIUM	HIGH	MEDIUM Rough Cost Estimate HIGH Traffic Disruption
7	MEDIUM	MEDIUM	LOW	MEDIUM	HIGH	MEDIUM	LOW	MEDIUM Rough Cost Estimate MEDIUM Traffic Disruption

NOTE
Benefits: HIGH (best rating) **to LOW** (worst rating)
Impacts: LOW (best rating) **to HIGH** (worst rating)

TABLE 2
Preliminary Comparison of Route 2 Improvement Packages
Summary of Ratings
ACTON AND CONCORD

Package #	Benefits				Impacts	
	Minimize Cut-Throughs	Reduce Delay	Improve Safety	Improve Local/Emergency Access	Right of Way Impacts	Construction Cost And Traffic Disruption
No Build	NO BENEFIT	NO BENEFIT	NO BENEFIT	NO BENEFIT	NO IMPACT	NO IMPACT
5*	MEDIUM	MEDIUM	LOW	LOW	LOW	LOW Rough Cost Estimate MEDIUM Traffic Disruption
5A	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	HIGH Rough Cost Estimate MEDIUM Traffic Disruption
5B	LOW	MEDIUM	HIGH	HIGH	MEDIUM	MEDIUM Rough Cost Estimate MEDIUM Traffic Disruption
1	LOW	LOW	LOW	LOW	LOW	LOW Rough Cost Estimate LOW Traffic Disruption
1A	HIGH	HIGH	HIGH	MEDIUM	LOW	LOW Rough Cost Estimate LOW Traffic Disruption
1B	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM	MEDIUM Rough Cost Estimate LOW Traffic Disruption
1C	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM Rough Cost Estimate MEDIUM Traffic Disruption

NOTE
Benefits: HIGH (best rating) **to LOW** (worst rating)
Impacts: LOW (best rating) **to HIGH** (worst rating)
***** This table compares the various alternative packages based on expected benefits and impacts in the context of the entire Route 2 corridor between Route 111 in Acton and Baker Avenue in Concord; while comparison in the previous table (Table 1) focuses only on the rotary design alternatives and expected benefits and impacts of the area surrounding the rotary. Therefore, ratings of Alternative 5, although under the same column title, may be different in Table 1 and Table 2.

IDENTIFICATION OF THE PREFERRED ALTERNATIVES

From the evaluations of the alternative packages, discussions at meetings of the Route 2 CAC, and the two public meetings in Acton and Concord, none of the composite packages for the Route 2 in Acton and Concord were identified as preferrable. Instead, all parties are in full support of the improvements at Concord Rotary. Three design alternatives for this location were identified as desirable for further analysis. They are: Alternative 3–Diamond Interchange, Alternative 5–Partial Cloverleaf Interchange with Diamond Ramps on the North Side, and Alternative 7–Modified Partial Cloverleaf Interchange. Appendix A contains the towns' correspondence with MassHighway and a technical memorandum summarizing the results of the public meetings The next step is the preparation of the Environmental Notification Form which marks the beginning of the preparation of the environmental documents. Subsequent steps include design, land acquisitions, if any are required, and construction.

APPENDIX A

1. Towns' Correspondence with MassHighway
2. CTPS Memo Summarizing Public Participation Results

OLD NORTH BRIDGE

TOWN OF CONCORD
BOARD OF SELECTMEN'S OFFICE
22 MONUMENT SQUARE - P.O. BOX 535
CONCORD, MASSACHUSETTS 01742

TELEPHONE (978) 318-3001
FAX (978) 318-3002

August 8, 2001

Mr. Kenneth Miller, Chair
Route 2 Corridor Advisory Committee
Bureau of Transportation Planning and Development
Massachusetts Highway Department
10 Park Plaza
Boston, MA 02116

RE: Concord Rotary

Dear Ken,

Officials in the Town of Concord have had the opportunity to review the conceptual plans for the Rotary which have been developed by Stan Wood and his team for the Route 2 Corridor Advisory Committee. We would like to offer the following comments:

1. We are encouraged by the efforts to conceptualize planning over the entire segment of Route 2 from Route 27 in Acton to the Rotary, and hope that future presentations will also include the Baker Avenue intersection. While we recognize that the improvements at the Rotary will occur prior to improvements in Acton or at Baker Avenue, it is important that the planning recognize issues to the east and west of the Rotary.

2. The Towns have always acknowledged the limits of transportation modeling and the associated predictions of future traffic growth and patterns, but to the extent that we continue to rely on these models to compare possible intersection combinations, we hope that the models can go out further – to 2030 at least, and that the modeling is based on the most up to date analysis of growth in the surrounding area. Particularly to the west, large shifts in population and commuter patterns are being observed.

3. The Town of Concord firmly believes that there must be grade separation at the Rotary. The No- Build and signalized alternatives must be studied as baseline cases for MEPA, but should be ruled out as serious alternatives.

4. Over the long term, giving Acton grade separated intersections with access to Route 2 can only help Concord, particularly in reducing traffic in Concord's neighborhoods.

5. The fundamental mission, as outlined in the Statement of Purpose and Agreement among the Towns of Acton, Concord, and Lincoln in forming the Advisory Committee, is to "bring about short term and long term improvements to Route 2 that improve safety, increase the efficiency of traffic movement, and maintain appropriate local circulation. " This should remain the fundamental mission of the CAC. Other strong community concerns, as listed below, should strongly guide the planning for Route 2, but we recognize that it may be impossible to optimize all of these sometimes conflicting goals:

    a. Preservation of wetlands
    b. Preservation of agricultural lands
    c. Preservation of historic resources (cemetery, house, other)
    d. Improvement of turning movements for all traffic
    e. Reduction of impacts on neighborhoods (traffic increases, loss of buffer, etc.)
    f. Provision of a campus for MCI Concord (eliminate pedestrian/car conflicts, provide greater security, improved landscaping)
    g. Provision of pedestrian and bike access across Route 2 from 2A and Barrett's Mill Road to Commonwealth Avenue
    h. Provision of pedestrian and bike and wildlife crossing at old RR intersection
    i. Respect for the needs of business communities (Commonwealth Ave and Route 2A)

6. Comments on the Alternatives:

No single alternative seems to be a preferred alternative at this point. Each presents tradeoffs among the Town's objectives, which are difficult to quantify and compare without additional information. It would be extremely helpful to the Town if a table, such as the one developed for Crosby Corner (attached) could be provided comparing the alternatives in a general way. Among some of the impacts we would suggest (column one) are the following:

    a. woodlands
    b. agricultural land
    c. wetland impact
    d. slope easements or takings
    e. impacts on residential street traffic
    f. loss of open space/ conservation land
    g. hazardous waste
    h. air quality
    i. noise
    j. historical/archaeological
    k. aesthetic and visual

l. construction period
m. cost
n. property tax revenue reduction, if any
o. improvement of turning movements
p. ease of accommodating pedestrians
q. ground water and surface water levels, movement, and contamination

It would also be helpful to hear from MassHighway which alternatives they believe will be the most helpful to the central mission of the CAC in terms of traffic safety and movement of traffic.

7. One specific request is that the Warner's Pond quadrant be looked at once again to see if the cloverleaf alternatives can be drawn midway between the current Commonwealth Avenue location and the alternative toward the west. If a road were to bisect the current parking lot, could the cloverleaf fit on the near side of the cemetery while still accomplishing the "campus" objective? Could parking be rearranged along the prison wall?

8. For several of the alternatives (3, 5, and 6) we wonder if the signals will be too close together for the level of traffic?

Thank you for the opportunity to review these alternatives. We look forward to seeing you in September.

Sincerely,

Sara S. Schnitzer, Chair
Board of Selectmen

cc: Sara Mattes, Lincoln Board of Selectmen
Dore Hunter, Acton Board of Selectmen
Senator Susan Fargo
Representative Cory Atkins
Senator Pamela Resor
Marcia Rasmussen, Planning Director
Bonnie Polin
Ken Kalinowski, Town Engineer

TOWN OF ACTON
472 Main Street
Acton, Massachusetts, 01720
Telephone (978) 264-9612
Fax (978) 264-9630
E-Mail BOS@town.acton.ma.us

Peter K. Ashton, Chairman
Board of Selectmen

August 14, 2001

Kenneth S. Miller, P.E.
Deputy Director
Bureau of Transportation
Planning and Development
MassHighway
10 Park Plaza
Boston, MA 02116-3973

Re: Route 2 CAC Concord Rotary Proposed Project

Dear Mr. Miller:

As we look toward the September 13, 2001 quarterly meeting of the Route 2 CAC we wish to provide you feedback from Acton in regard to what was presented at the last meeting. Although we very much appreciate the efforts to date in regard to the Rotary project I regret to note that our feedback in this instance is quite negative.

All of the integrated Concord/Acton conceptual traffic schemes embodied within the CTPS 2020 traffic flow modeling shown at the Route 2 CAC Meeting held on June 7, 2001 are in **conflict with Acton's Route 2 CAC goals** and have therefore been rejected by the political leadership of the Town.

The options to which I refer all involved reworking the existing Route 2 Rotary in Concord into a grade level, many lane, signalized intersection and would, in various ways have intentionally directed further highway traffic over Acton and Concord residential streets while degrading emergency service access to local areas.

Acton's Route 2 (and to the degree applicable Route 2A) goals are and have consistently been:

1) To consider traffic problems/potential roadway improvements both on the State Highway **and also on the local Town roadways**, such that to the maximum degree possible the solution of a problem within one surface transportation jurisdiction does not create or exacerbate difficulties in the other jurisdiction; and

2) To the maximum extent possible to keep Route 2 traffic on Route 2, i.e. discourage traffic that would otherwise use Route 2 from leaving that roadway to transverse local residential streets not designed for arterial traffic in an attempt to avoid Route 2 bottlenecks; and

3) To restore lost cross Town access points across Route 2, which were severed when the State recognized its mistakes in their original configuration and chose to expunge crossings rather than fix them, thereby regaining the previous emergency routes and the geographic unity of the community.

Prior to the June 7th meeting it had been Acton's Route 2 CAC representative's understanding that the State was seeking the communities' input as to which of the conceptual alternatives for revision of the Route 2 Concord Rotary should go forward for environmental review. It was to that end that we understood that the various alternatives had been presented to the CAC, and to the Boards of Selectmen in Concord and Acton. Some feed back had been provided prior to June 7, 2001 and some modification had been made in several alternatives in response to what we understood to be our preliminary community comments. At the March 2001 CAC meeting CTPS presented the traffic figures for year 2000 modeled around Alternative 5. We were advised that the 2020 traffic projections would be available in June. Prior to the June 7th meeting Acton had not heard any favorable comment concerning Alternative 1, the nine lane, grade level signalized intersection, other than that it would be the cheapest alternative to construct.

We were therefore startled when the June 7th CTPS presentation of the 2020 traffic modeling projection was built around Rotary Alternative 1, and variously showed linked Acton alternatives:

1) no alterations in Acton; or

2) dead ending Hosmer Street North and South of Route 2, grade separating the Piper/Taylor crossing but denying any access off or onto Route 2, and a full grade separated interchange at School/Wetherbee on State and Acton Conservation land; or

3) building a full grade separated interchange at Hosmer Street, dead ending Piper and Taylor Streets North and South of Route 2, dead ending School Street South of Route 2 and providing a high traffic flyover on and off Route 2 to the North at Weatherbee Street.

Inasmuch as the Concord Route 2 Rotary problem and Acton's Route 2 problems are to a greater or lesser degree interrelated it was perfectly understandable that CTPS might wish to join the two together for modeling purposes. However, the resulting conceptual thinking, at least in regard to the Acton situation, is so seriously flawed that Acton feels duty bound to cry halt to any further development of this line of thinking.

The June 7 presentation does not satisfy any of Acton's goals, indeed these schemes are directly counter-productive to Acton's Goals Nos. 1 and 2. Goal 3, safe cross town access is potentially addressed at one or two points, depending on the variations in the June 7th schemes, but at the cost of making Town streets in effect service roads for Route 2 with concomitant heavy traffic flows directly opposed to Goals 1 and 2. In addition to inconveniencing residents of Acton, and giving rise to potential emergency vehicle problems, the proposed cul-de-sac disconnection of both sides of Piper/Taylor and Hosmer Streets in one iteration, and Piper/Taylor and School Streets in another variation, from Route 2 would seriously impact local businesses in those areas dependant on Route 2.

It is respectfully requested that at the next or subsequent Route 2 CAC meeting we might be shown the 2020 traffic modeling projections (ultimately, of course, we believe these projects will be postponed long enough that projections should be done for 2030) for the Concord Rotary Alternative 5, which we might thus compare with the previous projections for 2000 based on that potential configuration. Subsequently we ask that a second discussion, parallel to the ongoing Concord Rotary discussions but subsidiary to those discussions in priority, concerning the Acton issues might be opened wherein another range of alternatives might be presented to Acton for comment that might better attempt to match the Acton goals and objectives for the future Route 2 configuration in our community.

Thank you for your and your staff's continuing interest in the Route 2 issues.

Sincerely,

Peter K. Ashton DPJ

Peter K. Ashton
Chairman, Board of Selectmen

Cc: Sally Schnitzer, Selectman
1155 Lowell Road
Concord, MA 01742

Rosamond Delori, Selectman
44 Tower Road
Lincoln, MA 01773

From: DoreHunter@aol.com <DoreHunter@aol.com>

To: manager@town.acton.ma.us <manager@town.acton.ma.us>; PKAshton@aol.com <PKAshton@aol.com>

Cc: bos@town.acton.ma.us <bos@town.acton.ma.us>; pb@town.acton.ma.us <pb@town.acton.ma.us>; tac@town.acton.ma.us <tac@town.acton.ma.us>; conscom@town.acton.ma.us <conscom@town.acton.ma.us>; dabt@town.acton.ma.us <dabt@town.acton.ma.us>; fwidmayer@town.acton.ma.us <fwidmayer@town.acton.ma.us>; bcraig@town.acton.ma.us <bcraig@town.acton.ma.us>; edc@town.acton.ma.us <edc@town.acton.ma.us>; apsc@town.acton.ma.us <apsc@town.acton.ma.us>; stanely.wood@state.ma.us <stanely.wood@state.ma.us>; arthus.frost@state.ma.us <arthus.frost@state.ma.us>; rdelori@makem.com <rdelori@makem.com>; Schntz@aol.com <Schntz@aol.com>; ruthlauer@concordma.com <ruthlauer@concordma.com>; presor@senate.state.ma.us <presor@senate.state.ma.us>; Rep.CoryAtkins@hou.state.ma.us <Rep.CoryAtkins@hou.state.ma.us>; kenneth.miller@state.ma.us <kenneth.miller@state.ma.us>; efip@ctps.org <efip@ctps.org>

Date: Wednesday, December 26, 2001 2:40 PM

Subject: Route 2 Improvement Preliminary Study, Acton-ConcordRoute 2 CAC Project

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From: Acton Selectmen's Route 2 CAC Representative
To: Chairman, Acton Board of Selectmen
Acton Town Manager
Re: Recommended Process Before March 21, 2002 Route 2 CAC Meeting

1. In view of the fact that we now find ourselves reacting to some specific concepts for changes in the Route 2 configuration in Acton, I strongly recommend that the Acton Board of Selectmen sponsor a well advertised public hearing, prior to the next Quarterly Meeting of the Route 2 CAC (March 21, 2002). The objective would be to seek public input in regard to the conceptual suggestions for reconfiguration of the Route 2 intersections in Acton (Route 111, Piper-Taylor Roads, Hosmer Street and School-Wetherbee Streets) most recently and graphically laid out in the Draft CTPS Route 2 Improvement Preliminary Study, Acton and Concord, dated 11/13/01.

2. In addition to a general public notice for the suggested hearing, in order increase the likelihood that parties potentially effected might be present and heard from, I recommend that specific invitations be extended to:

a) the representatives of the businesses located on Discovery Way (Digital Building & Honeywell-Data Instruments), the Auto Auction, the Concordian Motel, the Craig Road Industrial Park and BOC Gases; and

b) the residents living in the immediate vicinity of the prior, but now blocked, grade level Hosmer Street crossing of Route 2, the Faith Evangelical Free Church, and the residents living in the immediate vicinity of the existing grade level crossing at Piper-Taylor Roads (including those

new residences on Farmstead and Anders Roads); and

c) the Acton Conservation Commission as regards the Acton Conservation Lands on the South side of Wetherbee Street (Boy Scout Field); and

d) the Acton Public School Committee as regards bus routes and the proximity to the Conant School, as well as the Acton-Boxborough Regional District School Committee as regards bus routes.

3. As I have reported orally and in writing to the Board this subject has become more urgent since, at the December 13th Quarterly Meeting of the Route 2 CAC, there was general acknowledgment by all relevant parties that the selection of those alternatives for the reconfiguration of the existing Concord Route 2 Rotary thought to be sufficiently viable for formal environmental study and review should not be kept separate from the selection of similar alternatives for the Route 2 intersections in Acton. As you know, the Acton Board of Selectmen recently reached a conclusion as to the viable Concord Rotary reconfiguration alternatives, but did so on the prior assumed basis that the Concord and Acton projects would not be cojoined for study purposes. Now that it appears that at least the long range study and planning for the Concord and Acton projects will proceed together, it is important that potential stake holders become involved in the decisions as to what Acton alternatives are potentially viable.

4. In my personal view there is no obvious "best solution" to the Route 2 problems in Acton. The generally agreed Acton Route 2 reconfiguration objectives of 1) attempting to discourage commuters from using local roads to avoid tie-ups on Route 2, and 2) seeking safer grade separated crossings of Route 2 to repair the old interconnections cut off at Hosmer and School-Wetherbee will be difficult to achieve, and are to some degree are at cross purposes. Despite the fact that any actual physical Route 2 reconfiguration in Acton is many years away, we should make a major effort to interest those who would be directly effected if these proposed changes were being made now, and hear all their current concerns, as proxies for those who may comment in future years.

5. For those recipients of this message who do not have the 11/13/01 draft conceptual CTPS drawings referred to above, I believe copies can be obtained from the Town Manager's secretary. If not, I can provide a copy. The conceptual options presented by CTPS, with incremental Year 2020 traffic projections, can be briefly described textually as:

A) Do Nothing; and

B) Concept 5 - Build a half Diamond, half Cloverleaf replacement of the Concord Rotary, Do Nothing in Acton; and

C) Concept 5A - Same as (B) in Concord, Build a full Grade Separated Interchange at Hosmer Street, with Service Roads on both sides of Route 2 from Hosmer to Piper- Taylor, and a Grade Separated Interchange at Piper-Taylor; and

D) Concept 5B - Same as (B) in Concord, Rebuild School-Wetherbee as a Grade Separated Crossover with no Route 2 Access, Build a full Diamond Grade Separated Interchange at Hosmer Street, with a North side only Service Road from Hosmer to Taylor, and Rebuild Piper-Taylor as a Grade Separated Crossover with no Route 2 access; and

E) Concept 1A - Replace the Concord Rotary with only a Grade Separated Crossover from Route 2A to Commonwealth Avenue, move the major intersection West into Acton and construct a full Cloverleaf Grade Separated Intersection at School-Wetherbee, make both sides of Hosmer Street at Route 2 into Cul de sacs (No Route 2 connection at all), and rebuild Piper-Taylor as a Crossover with no connections at all.

F) Concept 1B - Same as (E) in Concord, Cul de sac School Street so it has no Route 2 connection, provide a Bridge at Wetherbee Street only allowing Eastbound access onto Route 2 and Westbound exit from Route 2, build a full, Grade Separated Diamond Interchange at Hosmer Street, and Cul de sac both Taylor and Piper Roads so those streets have no connection with Route 2.

G) Concept 1C - Same as (E) in Concord, Cul de sac Wetherbee Street well North of Route 2, cut a New Road through the Boy Scout Field from the Concord Road-Route 2A Intersection to join School Street over a Grade Separated Route 2 crossing which includes a Half Diamond, Half Cloverleaf full intersection, bridge Hosmer Street over Route 2 without any connection at all, Reroute Route 111 to intersect and cross Piper Road at about the present entrance of Farmstead Road and provide both Eastbound on and off ramps to Route 2 with similar on and off ramps on the North side of Route 2 just east of Taylor Road as well.
I

Regards,
Dore' Hunter
Selectman
Tel: 978-263-0882
Fax: 978-263-9230
Email: DoreHunter@aol.com

From: DoreHunter@aol.com <DoreHunter@aol.com>

To: manager@town.acton.ma.us <manager@town.acton.ma.us>; PKAshton@aol.com <PKAshton@aol.com>

Cc: bos@town.acton.ma.us <bos@town.acton.ma.us>; pb@town.acton.ma.us <pb@town.acton.ma.us>; tac@town.acton.ma.us <tac@town.acton.ma.us>; conscom@town.acton.ma.us <conscom@town.acton.ma.us>; dabdt@town.acton.ma.us <dabdt@town.acton.ma.us>; fwidmayer@town.acton.ma.us <fwidmayer@town.acton.ma.us>; bcraig@town.acton.ma.us <bcraig@town.acton.ma.us>; edc@town.acton.ma.us <edc@town.acton.ma.us>; apsc@town.acton.ma.us <apsc@town.acton.ma.us>; stanley.wood@state.ma.us <stanley.wood@state.ma.us>; arthur.frost@state.ma.us <arthur.frost@state.ma.us>; rdelori@makem.com <rdelori@makem.com>; Schntz@aol.com <Schntz@aol.com>; ruthlauer@concordma.com <ruthlauer@concordma.com>; presor@senate.state.ma.us <presor@senate.state.ma.us>; Rep.CoryAtkins@hou.state.ma.us <Rep.CoryAtkins@hou.state.ma.us>; kenneth.miller@state.ma.us <kenneth.miller@state.ma.us>; efip@ctps.org <efip@ctps.org>; Ko@greenintl.com <Ko@greenintl.com>

Date: Wednesday, December 26, 2001 9:54 PM

Subject: Route 2 Improvement Study - Correction to Concept Misstatement

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To All,

Please note that there was an error in my word description of the proposed conceptual change to one of the intersections (Concord Rotary) in the second group of proposals listed in my earlier Email today concerning the work of the Route 2 CAC. Ko Ishibura of the Acton Transportation Advisory Committee noted such in his message to me which I have set forth below:

.....

Dore,

Under Concept 1A, 1B and 1C, there will be a signalized intersection serving the existing Route 2A and Commonwealth Avenue at the existing Concord Rotary, not the crossover as stated in your e-mail. I verified that with MassHighway.

Ko Ishikura
TAC member

.....

Thank you Ko!

Regards,
Dore' Hunter
Selectman
Tel: 978-263-0882
Fax: 978-263-9230
Email: DoreHunter@aol.com

Efi Pagitsas

From: <DoreHunter@aol.com>
To: <kenneth.miller@state.ma.us>
Cc: <bos@town.acton.ma.us>; <manager@town.acton.ma.us>; <tac@town.acton.ma.us>; <pb@town.acton.ma.us>; <Schntzr@aol.com>; <ruthlauer@concordma.com>; <Mattes50@aol.com>; <rdelori@markem.com>; <stanely.wood@state.ma.us>; <efip@ctps.org>; <arthur.frost@state.ma.us>
Sent: Saturday, March 16, 2002 7:33 PM
Subject: Acton's Report at March 21st Route 2 CAC Meeting

Town of Acton
Board of Selectmen
F. Dore' Hunter, Selectman

16 March 2002

Kenneth Miller
Chair, Route 2 Corridor Advisory Committee
Massachusetts Highway Department
10 Park Plaza
Boston, MA 02116

Re: Conceptual Route 2 Alterations in Acton

Dear Ken,

This is written in advance of the March 21st meeting of the Route 2 Corridor Advisory Committee meeting to advise you what the nature of my report from Acton will be at that meeting.

In February Stanley Wood, Efi Pagitsas and members of their staffs very kindly appeared at a Board of Selectmen's public hearing in Acton at our request. They made a very well crafted major public presentation of the Concord Rotary alternative concepts, and more importantly from our point of view, the draft November 13, 2001 CTPS preliminary concepts for various potential alterations at the Piper-Taylor, Hosmer, and School-Wetherbee present/former Route 2 crossing locations in Acton.

Our intent in holding this public hearing was to discern, as best we could so long in advance of formal consideration, what our citizens' perceptions might be of the various conceptual changes to Route 2 that the Corridor Advisory Committee has been discussing. The public hearing was well advertised, and specific invitations were mailed to potential abutters to the various potential highway projects. As a result the hearing was very well attended. Substantial comments were received from Acton citizens during the hearing, and in the weeks following.

Subsequently the Board of Selectmen also met in public session with the Acton Transportation Advisory Committee, our group of volunteer traffic professionals, to receive its advice, and heard still further public comment. Correspondence has also been received from our East Acton Village Planning Group and the Acton Conservation Trust reflecting those groups' opinions.

Based on all of this, I believe it is possible for us to state Acton's position in regard to the Town's preferences for further highway improvement study, and its objections to any implementation of much of the excellent conceptual work done in reaction to our earlier goal statement.

MassHighway has throughout this process been most cooperative and has faithfully attempted to translate into appropriate conceptual drawings the goals that we in Acton have set forth in regard to our segment of Route 2 between the Route 27 overpass and Acton's eastern border. We have much appreciated that cooperation. However, it appears now, that based on this work we should revise our goals.

The goals stated by Acton previously were two fold:

1) Take steps to encourage Route 2 commuters to stay on the highway, discourage the taking of "shortcuts" through the bordering residential neighborhoods, and thus reduce the volume of highway traffic flowing through the Acton and Concord neighborhoods; and

2) Recreate some of the cross Town access Acton lost when the state blocked the Hosmer Street and School-Wetherbee Streets crossings of Route 2.

Acton still adheres to Goal No. 1 above. Unfortunately, however, it now appears that the steps which might be necessary to realize Goal No. 2 will compromise the first goal. In other words recreating additional cross Town access appears to threaten to yield additional and avoidable heavy traffic flows through the very neighborhoods we are trying to protect. Put still another way, the cross Town access goal seems to be an instance where "the cure is worse than the disease".

Therefore, pending the results of some further study, our current position is this:

A) Acton continues to favor Alternative 5 for the Concord Rotary replacement. Alternative 5 both appears to us to provide some moderate improvements in Acton, and at the same time to be the best functional solution to the Rotary problem.

B) Acton does not look favorably on **any** of the draft 11/13/01 CTPS Acton Alternatives, Nos. 1A, 1B, 1C, 5A or 5B. Given what we have seen in these concepts, and the attendant differential traffic projections, it is likely that Acton will withdraw its long held goal of reestablishing lost cross Town access and choose to live with the present situation, with relatively minor exceptions noted at the end of this message.

The three Acton alternatives in the No. 1 set would all move the replacement for the Rotary into Acton and impinge on open farm lands which are much valued contributions to the character of the Town. The cul de sacs included in Alternatives 1A and 1B ion addition would severely compromise the important commercial sites along the south side of the highway by removing direct access to Route 2, forcing that trip generation into long indirect routes through residential neighborhoods. This might well result in commercial abandonment of those sites with consequent loss of tax revenues. An important Town owned open field, that is in Conservation status and does much to establish the "feel" of Acton, would be literally destroyed in Alternative 1C, which for that reason would never survive environmental review. The circulation patterns would compromise Acton's ability to revitalize and reconstitute an East Acton Village. And all three of the No. 1 alternative concepts would substantially increase the the traffic through our residential neighborhoods.

The two No. 5 Rotary scheme Acton alternatives, 5A and 5B are built around a Rotary solution which Acton favors. But there are substantial objections to those alternatives as well. Both those alternatives are expensive and would result in very substantial traffic increases on Hosmer Street. Citizens expressed some doubt that the traffic patterns/numbers seen in the concept drawings were realistic, but nevertheless it becomes apparent that residential traffic would be very substantially increased. Not surprisingly many Acton residents who have bought/built homes along Hosmer and the other streets that have enjoyed decreased traffic since the Route 2 crossings were blocked are now accustomed to their quiet streets and will oppose anything that generates the very substantial traffic increases projected in the varying concepts sketches. The Acton "official family" still has had some concerns about the lengthened emergency vehicle routes created when the state blocked the historic Hosmer Street crossing, but we have obviously had to live with the lengthened route from our Center Fire Station/Ambulance House for a generation now and are not aware of any adverse experience. Acton has nevertheless, as a matter of due diligence, begun a detailed computer aided study of Fire Department response times to incidents in southeast Acton, both from the existing Center Fire Station and the proposed new Station at Routes 2A and 27.

Despite the foregoing there is, however, interest in further examining the potential benefits of three relatively minor Route 2 alterations in Acton that are set out immediately below:

A) Grade Separated Crossing At School-Wetherbee - It is noted that the part of Acton Alternative 5B concept showing a straight cross over Route 2 bridge (no access to Route 2) at School-Wetherbee, at least superficially and in conjunction with the other proposals, does not seem to impose an adverse burden on any residential neighborhood, and would restore a modicum of the lost cross Town access. We would like to see further conceptual drawings, with differential traffic projections, assuming that Rotary Alternative No. 5 was implemented and all else were to be held as it is at present except, that a School and Wetherbee Streets crossing of Route 2 was implemented, grade separated, with either 1) with a right turn capability onto Route 2 on each side, or 2) with no Route 2 access.

B) Improve Route 111 Eastbound Merge Into Route 2 - We would like to see a widening and lengthening of the merge area where Route 111 traffic eastbound fades into Route 2 eastbound, as well as installation of flashing

illuminated signage mounted on or west of westbound Route 2 to Route 111 exit bridge warning approaching drivers when they will encounter a red traffic signal as they round the curve under the bridge. (We would also be open to exploration of any other suggestions MassHighway might have to improve that eastbound Route 11 merge onto Route 2.)

C) Emergency Services Preemption of Piper-Taylor Signals - State financed installation of an opticon or other similar device which would allow Acton fire/police preemption of the Piper-Taylor Roads traffic signal's normal sequence in order to cross/enter Route 2 safely.

We would note in passing that we don't believe that there is any particular problem with the existence of the left exit westbound onto Route 111 from Route 2, occasionally mentioned by highway officials as undesirable, apparently simply because it is on the left. We would be inclined to resist changes there.

We also wish to note that a number of Acton Route 2 commuters have commented that the most cost effective and easily attainable Route 2 flow improvement, one that all of us might live to see implemented, would simply be to properly sequence the traffic signals along Route 2 in Concord. Representative Atkins was present at our hearing, and in response to a question said there that she has not been able to learn what has become of the highway funds she obtained some time ago for just that purpose.

Sincerely yours,
F. Dore' Hunter
Selectman
Acton Route 2 CAC representative

OLD NORTH BRIDGE

TOWN OF CONCORD
BOARD OF SELECTMEN'S OFFICE
22 MONUMENT SQUARE - P.O. BOX 535
CONCORD, MASSACHUSETTS 01742

TELEPHONE (978) 318-3001
FAX (978) 318-3002

March, 18, 2002

Mr. Kenneth Miller, Chair
Route 2 Corridor Advisory Committee
Bureau of Transportation Planning and Development
Massachusetts Highway Department
10 Park Plaza
Boston, MA 02116

RE: Concord Route 2 Rotary

Dear Ken,

I am writing this letter pursuant to a vote of the Board of Selectmen, March 18, 2002. Officials in the Town of Concord have had the opportunity to review the conceptual plans for the Route 2 Rotary that have been developed by MassHighway and Central Transportation Planning. We are appreciative of the visits to Concord and Acton by Stan Wood, Efi Pagitsas, and others during the last few months to make presentations to the public and our town staff.

We have encouraged community input into the process over the last several weeks. The following letter incorporates comments from the Board of Selectmen, Planning Board, Natural Resources Commission, Public Works Commission, town staff, and a number of Concord residents. While there is not unanimity on all points, we offer the following important input for MassHighway and the Route 2 Corridor Advisory Committee to consider.

1. **Planning Context.** We are encouraged by the efforts to conceptualize planning over the entire segment of Route 2 from Route 27 in Acton to the Rotary, and hope that future presentations will also include the Baker Avenue intersection. While we hope and expect that the improvements at the Rotary will occur prior to improvements in Acton or at Baker Avenue, it is important that the planning recognize issues to the east and west of the Rotary.

2. **Transportation Modeling.** The Towns have always acknowledged the limits of transportation modeling and the associated predictions of future traffic growth and patterns, but to the extent that we continue to rely on these models to compare possible intersection combinations, we hope that the models can go out

further – to 2030 at least, and that the modeling is based on the most up to date analysis of growth in the surrounding area. Particularly to the west, large shifts in population and commuter patterns are being observed. The Town also strongly supports the provision of public transportation, where possible, to address the regional transportation needs.

3. **Grade Separation.** The Town of Concord firmly believes that there must be grade separation at the Rotary. The No- Build and signalized alternatives must be studied as baseline cases for MEPA, but should be ruled out as serious alternatives. If you keep an at-grade alternative in the study, we suggest that you consider moving the signal to the west, moving Commonwealth Avenue through the parking lot. We also believe that a signalized intersection with 10 travel lanes is out of scale with this location.

4. **Town of Acton**. Over the long term, establishing grade separated intersections in Acton with access and egress to Route 2 can only help the traffic situation in Concord, particularly in reducing traffic in Concord's neighborhoods. We therefore encourage MassHighway, CTPS, and the Town of Acton to continue to look for conceptual models which will improve Acton's cross town access and access to Route 2. We would, however, strongly oppose any conceptual models which reduce access and egress to Route 2.

5. **Goals and Objectives.** The fundamental mission, as outlined in the Statement of Purpose and Agreement among the Towns of Acton, Concord, and Lincoln in forming the Advisory Committee, is to "bring about short term and long term improvements to Route 2 that improve safety, increase the efficiency of traffic movement, and maintain appropriate local circulation." This must remain the fundamental mission of the CAC.

   The study lists the following as the Objectives of the Study:

   Study Objectives:

   Improve traffic safety on route 2 and local roads
   Improve pedestrian circulation and safety
   Reduce delays on Route 2 and local roads
   Reduce cut through traffic on local roads
   Improve local access to/across Route 2
   Improve emergency access across Route 2
   Maintain Mass. State Police and MCI access to Route 2

   In addition, the study lists the following "Evaluation Criteria":

   Minimize Cut throughs
   Minimize Delay
   Improve Safety
   Improve local/emergency access
   Minimize environmental impacts
   Minimize visual impacts
   Minimize construction costs
   Minimize traffic disruption during construction

While we are in general agreement with the items on these lists, it isn't clear to us why certain items are objectives, and some are evaluation criteria. Indeed, some (like reduce cut through traffic) are on both lists. We would suggest, for example, that minimizing environmental impacts should be an objective of the study, and not just an evaluation criteria. Perhaps there can be some further discussion about the distinction between these two lists, and the way they will be used in determining the preferred alternative.

6. **Environmental Impacts.** The Natural Resources Commission, which is Concord's Conservation Commission, has identified a number of important concerns with the proposed alternatives.

a. Although there is general consensus among other boards that the realignment of Commonwealth Avenue can lead to the elimination of pedestrian conflicts, provide greater security at MCI Concord, and allow for improved landscaping, the Natural Resources Commission is deeply concerned that abandoning the existing alignment of Commonwealth Avenue may lead to environmental impacts on the Warner's Pond area. We hope that as we move forward, there can be a closer look at the realignment so that impacts can be minimized.
b. The Town feels strongly that the project should incorporate pedestrian, bicycle, and wildlife crossings into the design at an early stage of the planning. The Natural Resources Commission requests that wildlife corridors be identified, neighborhood linkages addressed, and funding for these items be included in the project.
c. The Natural Resources Commission will be looking for the provision of ample buffers and protections for all wetlands and waterways, minimization of construction impacts to the Assabet River corridor, protection of Warner's Pond and environs, establishment of ample setbacks to existing woodlands, preservation of existing fields and productive agricultural lands, preservation of existing street trees, and preservation of existing wooded buffers to surrounding neighborhoods and the Concord Municipal Light Plant.

7. **Comments on the Alternatives:** As MassHighway narrows its list of designs to move into the environmental review portion of the study, the Town of Concord offers the following comments. These comments are based on the preliminary information developed and provided to date, and the Town may modify its preliminary assessment as additional information and analysis occurs.

There seems to be general consensus that alternative 5 offers the best traffic safety improvements, but the environmental impacts will be significant. Alternative 3 offers a "tighter" footprint than alternative 5, and therefore may be more environmentally favorable, but our transportation groups do have concerns about the efficacy of the queues, the sequencing of the lights, and other traffic issues. Some of our residents have favored alternative 2. The Planning Board and Public Works Commission both commented favorably on Alternative 7, while the Natural Resources Commission found unacceptable environmental impacts on both #2 and #7. Alternatives #4 and #6 should be ruled out as they do not offer sufficient traffic and safety improvements.

To summarize, we recommend that MassHighway eliminate Alternatives #4 and #6 from future study. We recommend that alternatives #3, #5, #7, and #2 be further studied.

8. Sequenced Lights. There has been some discussion about the sequencing of lights from Baker Avenue to Route 126 in order to minimize the delay times on Route 2 during the morning and evening commute. The Town of Concord is supportive of these efforts, but stresses that the amount of "green time" available to traffic CROSSING Route 2 cannot be reduced. If the same amount of "green time" can be offered to cross-traffic, for example at Route 62, Sudbury Road, Old Road to Nine Acre Corner, Baker Avenue, and Route 126, but the sequencing can be improved to improve traffic flows on Route 2, then we will be supportive of the light sequencing effort.

9. Other Comments.

a. One specific suggestion is that alternatives in the Warner's Pond quadrant (Southwest) be looked at to see if the relocated Commonwealth Avenue could be drawn so that the road angles across the former White Row location, bisecting the present parking lot. We think that the parking lot can be reconfigured to provide ample parking without moving the road so far to the west. Perhaps the bridge across Route 2 could be angled, as well. It may also be possible to redraw the cloverleaf alternative so that it is to the north of the cemetery.

b. One resident of Concord questioned whether the cemetery could or should be moved.

c. In most of the alternatives, the intersection of Barrett's Mill Road and Route 2A is moved to the north. There will need to be careful consideration of the geometry of this intersection, and whether a stop sign or signal is warranted.

d. All of the alternatives call for the relocation of Assabet Avenue. The Town of Concord is ready to move forward with this relocation as soon as right of way issues and final design issues are resolved. There is State funding which has been set aside for this work, which we request be held for the Town.

e. At some point in the future, the Public Works Commission will need to work with the State to talk about the engineering and legal issues related to Town road relocations, road takings, and supporting infrastructure.

Thank you for the opportunity to review these alternatives.

Sincerely,

Sara S. Schnitzer
Chairman, Board of Selectmen

cc: Representative Cory Atkins
Senator Susan Fargo
Senator Pamela Resor
Acton Board of Selectmen
Lincoln Board of Selectmen
Daniel Brand
Peggy Briggs, Chairman Concord Planning Board
Marcia Rasmussen, Director of Planning and Land Management
William Edgerton, Director of Concord Public Works
Markus Pinney, Natural Resources Commission

TOWN OF ACTON
472 Main Street
Acton, Massachusetts, 01720
Telephone (978) 264-9612
Fax (978) 264-9630

William H. Shupert, Chairman
Board of Selectmen

June 27, 2002

Kenneth Miller
Chair, Route 2 Corridor Advisory Committee
Massachusetts Highway Department
10 Park Plaza
Boston, MA 02116

Re: Route 2 CAC matters relating to Acton

Dear Mr. Miller:

You will, of course, recall that prior to the March 21, 2002 quarterly meeting of the Route 2 CAC the Acton Board of Selectmen provided you with advice by Email that, following a significant public hearing, it had decided at least tentatively to withdraw it previously asserted goals in regard to additional grade separated North-South access across Route 2. This tentative major change of position was confirmed orally at the March CAC meeting by Acton Selectmen Doré Hunter.

Acton's change in position resulted from the Board's observations and due to the comments received at a major public hearing facilitated through the efforts of Stanley Wood, Efi Pagitsas and members of their respective staffs who very kindly appeared in Acton at our request. We have previously advised you of what transpired at that meeting and subsequently. In March we indicated, however, that our conclusions were still tentative until we could complete our due diligence, which would involve a computer study of response times from our present and future contemplated Fire Station locations in varying circumstances.

The Acton Board of Selectmen and Town Staff has now had the opportunity to review the results of pertinent computer study. We have satisfied ourselves that the previously announced change of position, that we would in effect recede from Acton's previous secondary goal of increasing cross-Town North-South access across Route 2, should now be confirmed. Succinctly stated, we feel that the Acton CTPS alternatives presented at our request provide, upon reflection, a "cure that is worse than the disease".

Acton's Position:

A) Acton continues to favor Alternative 5 for the Concord Rotary replacement. Alternative 5 both appears to us to provide some moderate improvements in Acton, and at the same time to be the best functional solution to the Rotary problem. However, several other Alternatives thought to be satisfactory to our friends in Concord should also made the subject of formal environmental

study. (Parenthetically we note that a number of Acton Route 2 commuters have commented that they believe the most cost effective and easily attainable improvement, one that all of us might live to see implemented, would be to simply and properly sequence the traffic signals along Route 2 through Concord to optimize flow.); and

B) Acton asks that none of the draft 11/13/01 CTPS Acton Alternatives, Nos. 1A, 1B, 1C, 5A or 5B be pursued any further; and

C) Acton nevertheless requests that the CTPS staff prepare conceptual drawings with projected 2020 traffic flow numbers related to several possible configurations of the School-Wetherbee Streets intersection with Route 2 for presentation to the CAC, so that we could better understand whether other changes in that location might be worthwhile.

1) Acton would like to see what the future effect might be, on Route 2 traffic and on nearby local streets, if a bridge was constructed across Route 2 connecting School and Wetherbee Streets in Acton, with provision for right turns onto Route 2 eastbound from School Street and westbound from Wetherbee Street; and

2) Acton would like to see what the future effect might be, on Route 2 traffic and on nearby local streets, if a bridge was constructed across Route 2 connecting School and Wetherbee Streets in Acton, without any provision for turns onto Route 2. (We are aware that our good friends in Concord would oppose construction in this configuration, but we believe seeing the traffic impact projections in this configuration would help us better understand the traffic dynamics here.);

3) Acton would like to see what the future effect projected by CTPS might be on traffic on both Routes 2 and 2A if Wetherbee Street were severed somewhere between Routes 2 and 2A, such that the Street might possibly be entered from one or both those highways, but would function as a connection between them. (This concern arises from the receipt by Acton of a local East Acton Village Traffic Study prepared by Vanasse Hangen Brustlin which contains a draft long term alternative to sever Wetherbee Street so as to better address local concerns in regard to Route 2A traffic flow.); and

D) Finally, having withdrawn from further consideration the potential construction of one or more very expensive grade separated crossing, to replace grade level crossings that MassHighway originally constructed but later closed due to their poor design, Acton requests that the Commonwealth undertake the following relatively inexpensive steps to improve safety at Acton's extremely important, sole remaining, grade level Route 2 intersection at Piper and Taylor Roads, by:

1) Widening and lengthening the merge area where Route 111 eastbound fades into Route 2 eastbound in the immediate approach to the Piper-Taylor traffic signal and

2) installing flashing illuminated signs west of the westbound Route 111 exit bridge warning approaching drivers that they will encounter a red traffic signal, and perhaps a long line of stopped vehicles, immediately as they round the curve under the bridge; and

3) installation of an emergency traffic signal preemption device associated with the Piper-Taylor traffic signal so that responding emergency vehicles entering or crossing Route 2 may have the further protection against collision afforded by appropriate red signals; and 4) reconfiguring the sensors for the Piper-Taylor traffic signal so that the signal controller will sense when crossing vehicles have been stranded in the center of the wide divider by a crossing signal turned red, and not have to remain there through following signal cycles absent another crossing vehicle appearing on the north or south side of the highway to activate another crossing signal. We recognize that further application may have to be made to MassHighway District 3 in regard to these four minor "fixes" for the Piper-Taylor intersection, but we believe the process should commence with an appropriate endorsement by the Route 2 CAC.

Sincerely,

William Shupert, III, Chairman

Copies to: Concord CAC representatives
Lincoln CAC representatives
MassHighway District 3
Acton Planning Board
East Acton Village Traffic Study Committee
Acton Traffic Advisory Committee

MEMORANDUM

TO: **Stanley Wood**
MassHighway

March 19, 2002

FROM: **Efi Pagitsas and Chen Yuan Wang**

RE: **Feasibility Study for Concord Rotary and Route 2 in Acton and Concord: Results of Public Participation Process**

The MassHighway/CTPS study team evaluated seven Concord Rotary design alternatives and five combined build alternatives for the Rotary and locations west of it in Acton. The results are documented in the CTPS memorandum dated December 6, 2001 (including Table attachments 1 through 4) and presented to the Route 2 Citizens' Advisory Committee (CAC) in late 2001. Following that meeting, the Route 2 CAC recommended that the study team present the findings to the selectmen meetings in Acton and Concord. The Concord traffic committee also requested a presentation. These presentations materialized on February 4, February 19, and February 13, 2002, respectively. About 100 and 60 citizens participated in the Acton and Concord meetings, respectively. The following is a summary of comments received at these meetings.

Selectmen's Meeting in Acton

1. Concord Rotary Design -- Acton citizens did not generally offer comments on the design of the Rotary. However, they seem to object to an interchange at School/Wetherbee streets instead of at the present Rotary location. However, it had become known from prior correspondence[1] that the Board of Selectmen favored design alternatives 2, 3, and 5 (elevated rotary, diamond, and partial cloverleaf interchanges)
2. Route 2 Access and Crossing -- In general, depending on the address of their residence, citizens objected to one or all of grade separations at the three Acton locations, School/Wetherbee, Hosmer and Piper/Taylor. In all cases, objections centered on concerns for neighborhood traffic increases due to improved access and crossing opportunities. However, some comments focused on the need for additional safe crossings across Route 2 without specifying the location where such should be provided.
3. Emergency Access -- Citizens did not appear concerned about lack of direct emergency access across Route 2. Some offered that the town should establish separate emergency centers north and south of Route 2, instead of constructing expensive transportation infrastructure across Route 2.
4. Many citizens expressed concern about the operations of the traffic signal at Piper and Taylor. Specifically, delays and queues at the Route 2 approaches to that signal are very long during the peak hours. Additionally, the eastbound queue is of concern. The end of the

[1] Correspondence of Peter K. Ashton, Chairman of the Acton Board of Selectmen to Kenneth S. Miller, Deputy Director of Planning, MassHighway, dated December 4, 2001, regarding Route 2 CAC Concord Rotary Replacement Proposed Project

queue is not visible to eastbound motorists as they come around the horizontal curve in the vicinity of its connection with Route 111.

Concord Traffic Committee and Selectmen's Meeting in Concord

1. In general, Concord appears to favor Route 2 alternatives that are more effective with traffic diversion problems in west Concord. However, they also understand that these exact options are those that Acton may not be in favor of.
2. Regarding the seven design options at the present Rotary location, they appear to favor alternative 5, the partial cloverleaf, more than the others. The diamond interchange design appears to be a second preference, and alternative 7, where the ramp connections to Route 2A are on the west side of Concord Light, is still under consideration.
3. Most participants appeared to be happy with the proposed relocation of Commonwealth Avenue on the west side of the MCI parking lot. However, some citizens offered that the parking lot should be on the south side of the prison campus.
4. Finally, the relocation of Assabet Avenue to Barrett's Mill Road was received favorably.

Summary

Both Acton and Concord appear to agree on a partial cloverleaf or diamond type of treatment at the Rotary. Based on this public participation outcome, MassHighway should be able to initiate the environmental process for that location only (including the segment between the Rotary and the Baker Avenue intersection.)

Route 2 access and crossing improvements in Acton may have to be postponed for the time being, unless citizen groups within the town reach consensus and make acceptable counter proposals to the CAC and the study team. However, it may be appropriate, and acceptable by the town of Acton, to consider a "bridge-only" at School and Wetherbee, along with the grade-separation at the Rotary. Otherwise, Piper and Taylor may be the only location in Acton for which there may be agreement for safety and traffic operations improvements.

cc: Ken Miller, MassHighway
Hasmukh Patel, MassHighway

APPENDIX B

Concord Rotary Design Alternatives

Summary of Design Alternatives
Alternative 1: Signalized Intersection
Alternative 2: Rotary Interchange Design
Alternative 3: Diamond Interchange
Alternative 4: Partial Cloverleaf Interchange
Alternative 5: Partial Cloverleaf with Diamond Ramps on North Side
Alternative 6: Partial Cloverleaf with Diamond Ramps on South Side
Alternative 7: Modified Partial Cloverleaf Interchange

Summary of Design Alternatives

Alternative 1: Signalized Intersection

Concept Elements

- Rotary would be replaced with a signalized intersection.
- Route 2 would be widened to 10 lanes (3 through, 1 left & 1 right in each direction).
- Commonwealth Ave. & Route 2A would be widened to four lanes.
- Route 2A (Elm St.) would need two left turning lanes.
- Relocation of Barrett's Mill Road
- Relocation of Assabet Ave

Impact Summary

- Historic property would not be affected.
- Driveway accesses eliminated
- Pedestrian crossing issues
- Least land takings
- Least environmental impacts
- LOS in 2020 AM peak-Satisfactory, in PM peak-Satisfactory/Unsatisfactory
- Lowest cost alternative (about $4 million)
- Low traffic disruption during the construction

Alternative 2: Rotary Interchange Design

Concept Elements

- Rotary would be replaced with a Rotary Interchange.
- Route 2 would be lowered.
- Retaining walls and two bridges for the grade separation of Route 2

Impact Summary

- Prop. Rotary would require larger radius (exist. R=150', Prop. R=260') to accommodate weaving distance between the vehicles entering and exiting the rotary.
- Relocation of Commonwealth Ave, Barrett's Mill Rd & Assabet Ave
- Safety issue related to rotary operation (i.e. conflicts between the vehicles entering & leaving the rotary)
- MCI-Concord property would be affected.
- Historic property may be affected
- Driveway accesses would be eliminated from Route 2
- Pedestrian crossing issues
- Land takings
- Significant Environmental impacts on Farms Lands & Wetlands
- Acceptable Levels of Service in the year 2020
- Highest Cost (between $20 and $25 million)
- Significant traffic disruption during the construction

Alternative 3: Diamond Interchange

Concept Elements

- Rotary would be replaced with a Diamond Interchange.
- Route 2 will not be lowered.
- Retaining walls and one bridge for grade separation of Route 2
- Relocation of Commonwealth Ave., Barrett's Mill Road & Assabet Ave.
- Commonwealth Ave. Bridge would be at least 4-lane wide.
- Two signalized intersections

Impact Summary

- MCI-Concord property would be affected.
- Historic property may be affected.
- Driveway accesses would be eliminated.
- Pedestrian crossing issues could be resolved.
- Land takings would be required.
- Low Environmental impacts (Farm Lands, Wetlands)
- Acceptable Levels of Service in the year 2020
- Cost about $15 million
- Traffic disruption during the construction would be moderate.

Alternative 4: Partial Cloverleaf Interchange

Concept Elements

- Rotary would be replaced with a Partial Cloverleaf Interchange.
- Route 2 would be lowered.
- Less retaining walls and one bridge for grade separation of Route 2
- Relocation of Barrett's Mill Road & Assabet Ave
- Two signalized intersections

Impact Summary

- Route 2A would require realignment.
- Favors Route 2A eastbound.
- MCI-Concord property would be affected.
- Historic property would not be affected.
- Driveway accesses would be eliminated.
- Pedestrian crossing issues
- Land takings would be required.
- Significant environmental impacts (Farm Lands, Wetlands)
- Acceptable Levels of Service in the year 2020
- Cost about $20 million
- Traffic disruption during the construction would be significant.

Alternative 5: Partial Cloverleaf w/ Diamond Ramps on North Side

Concept Elements

- Route 2 may not be lowered.
- Less retaining walls, and one bridge for grade separation of Route 2
- Relocations of Comm. Ave, Barrett's Mill Road & Assabet Ave

Impact Summary

- Favors Route 2A eastbound in AM and westbound in PM.
- MCI-Concord property would not be affected.
- Historic property may not be affected.
- Driveway accesses would be eliminated.
- Pedestrian crossing issues could be resolved.
- Land takings would be required.
- Environmental Impacts (High on Farm Lands, Low on Wetlands)
- Acceptable Levels of Service in the year 2020
- Cost about $15 million
- Traffic disruption during the construction would be moderate.

Alternative 6: Partial Cloverleaf w/ Diamond Ramps on South Side

Concept Elements

- Route 2 would be lowered
- Retaining walls and one bridge for grade separation of Route 2
- Relocation of Route 2A, Barrett's Mill Road and Assabet Ave
- Two signalized intersections

Impact Summary

- Does not favor Route 2A (eastbound in AM and westbound in PM).
- MCI-Concord property would be affected.
- Parking Lot would be halved.
- Historic property would not be affected.
- Driveway accesses would be eliminated.
- Pedestrian crossing issues
- Land takings would be required.
- Environmental impacts (High on Farm Lands, Low on Wetlands)
- Acceptable Levels of Service in the year 2020
- Cost about $20 million
- Traffic disruption during the construction would be significant.

Alternative 7: Modified Partial Cloverleaf Interchange

Concept Elements

- Route 2 will not be lowered.
- No retaining walls, one bridge for grade separation of Route 2
- Relocations of Comm. Ave, Barrett's Mill Road & Assabet Ave
- New connection between Rout 2A and Route 2 northbound
- Two signalized intersections

Impact Summary

- Favors Route 2A eastbound in AM.
- MCI-Concord property would not be affected.
- Historic property would not be affected.
- Driveway accesses would be eliminated.
- Pedestrian crossing issues could be resolved.
- Land takings would be required.
- Environmental impacts (High on Farm Lands, Low on Wetlands)
- Acceptable Levels of Service in the year 2020
- Cost about $15 million
- Traffic disruption during the construction would be moderate.

Route 2 Concord Rotary Alternative 1

ACTON
CONCORD

ROUTE 2A

ROUTE 2

ABANDONED R.R.

MASS. REFORMATORY FARM

MASS. REFORMATORY FARM

WARNERS POND

COMMONWEALTH AVE.

BARRETT'S MILL RD.

RELOCATED ASSABET AVE.

GROVE ST.

ASSABET AVE.

ASSABET RIVER

ROUTE 2

ELM PL.

MCI CONCORD

ELM ST.

BAKER AVE EXT

SOURCE: MassGIS, Commonwealth of Massachusetts Executive Office of Environmental Affairs. April 2001.

Route 2 Concord Rotary
Alternative 2

ACTON
CONCORD

ROUTE 2A

ROUTE 2

MASS. REFORMATORY
FARM

ABANDONED R.R.

MASS. REFORMATORY
FARM

WARNERS POND

COMMONWEALTH AVE.

MCI
CONCORD

ELM PL.

BARRETT'S MILL RD.

RELOCATED
ASSABET AVE.

GROVE ST.

ASSABET AVE.

ASSABET RIVER

ELM ST.

BAKER AVE EXT

SOURCE: MassGIS, Commonwealth of Massachusetts
Executive Office of Environmental Affairs. April 2001.

Route 2 Concord Rotary
Alternative 3

SOURCE: MassGIS, Commonwealth of Massachusetts Executive Office of Environmental Affairs. April 2001.

Route 2 Concord Rotary
Alternative 4

ACTON
CONCORD

ROUTE 2A

ROUTE 2

MASS. REFORMATORY
FARM

ABANDONED R.R.

MASS. REFORMATORY
FARM

WARNERS POND

COMMONWEALTH AVE.

MCI
CONCORD

ELM PL.

BARRETT'S MILL RD.

RELOCATED
ASSABET AVE.

GROVE ST.

ASSABET AVE.

ASSABET RIVER

ELM ST.

BAKER AVE EXT

SOURCE: MassGIS, Commonwealth of Massachusetts
Executive Office of Environmental Affairs. April 2001.

Route 2 Concord Rotary
Alternative 5

ACTON
CONCORD

ROUTE 2A

ROUTE 2

ABANDONED R.R.

MASS. REFORMATORY FARM

MASS. REFORMATORY FARM

WARNERS POND

COMMONWEALTH AVE.

MCI CONCORD

ELM PL.

BARRETT'S MILL RD.

RELOCATED ASSABET AVE.

GROVE ST.

ASSABET AVE.

ASSABET RIVER

ELM ST.

BAKER AVE EXT.

SOURCE: MassGIS, Commonwealth of Massachusetts
Executive Office of Environmental Affairs. April 2001.

Route 2 Concord Rotary
Alternative 6

ACTON
CONCORD

ROUTE 2A

ROUTE 2

MASS. REFORMATORY
FARM

ABANDONED R.R.

MASS. REFORMATORY
FARM

WARNERS POND

COMMONWEALTH AVE.

MCI
CONCORD

ELM PL.

BARRETT'S MILL RD.

RELOCATED
ASSABET AVE.

GROVE ST.

ASSABET AVE.

ASSABET RIVER

ROUTE 2

ELM ST.

BAKER AVE EXT.

SOURCE: MassGIS, Commonwealth of Massachusetts
Executive Office of Environmental Affairs. April 2001.

Route 2 Concord Rotary
Alternative 7

ACTON
CONCORD

ROUTE 2A

ROUTE 2

ABANDONED R.R.

MASS. REFORMATORY
FARM

MASS. REFORMATORY
FARM

WARNERS POND

BARRETT'S MILL RD.

RELOCATED
ASSABET AVE.

GROVE ST.

ASSABET AVE.

ASSABET RIVER

ROUTE 2

COMMONWEALTH AVE.

ELM PL.

MCI
CONCORD

ELM ST.

BAKER AVE EXT

SOURCE: MassGIS, Commonwealth of Massachusetts
Executive Office of Environmental Affairs. April 2001.

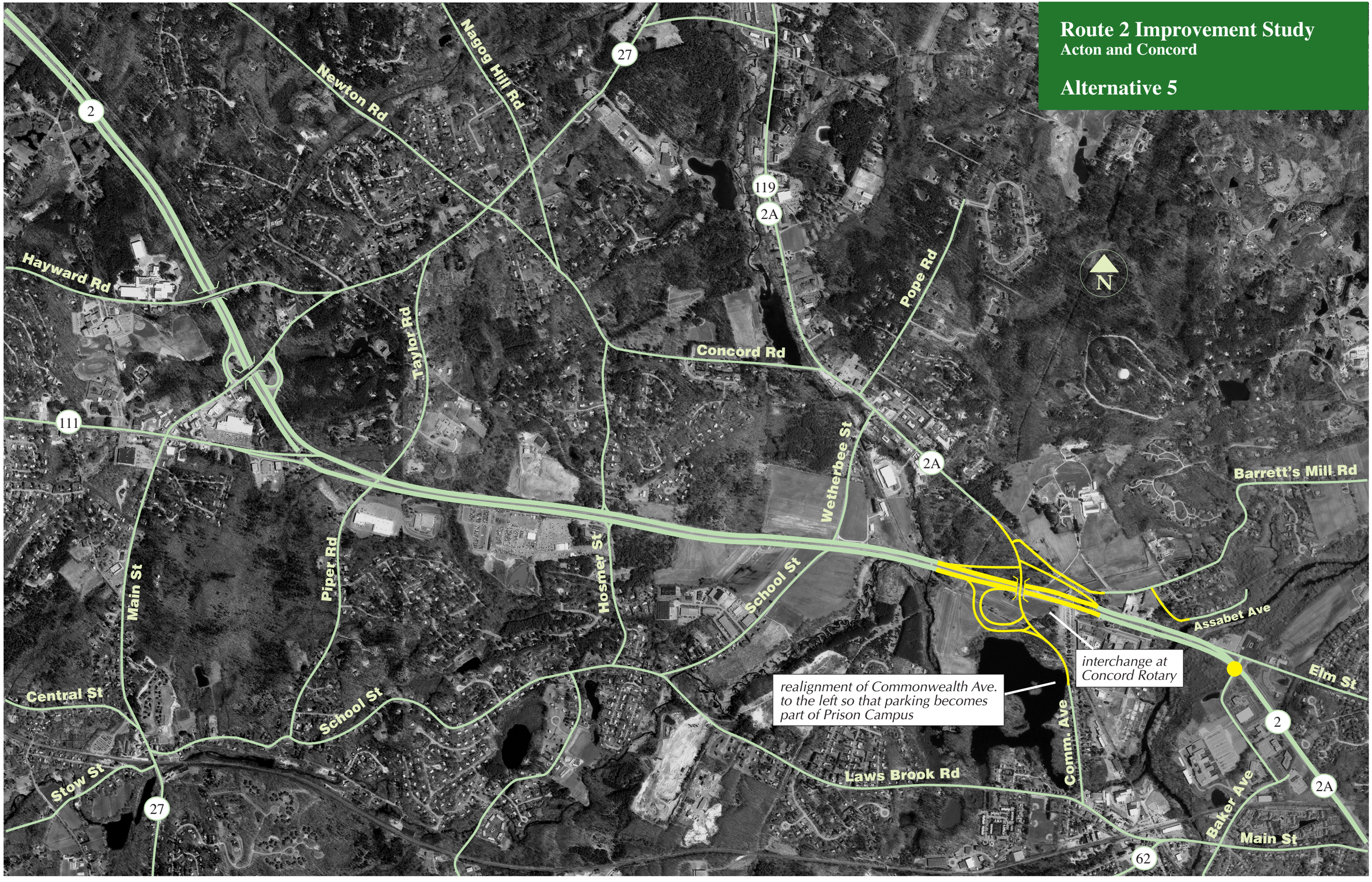
APPENDIX C

Alternative Packages for Route 2 in Acton and at Concord Rotary

Alternative 5:	Partial Cloverleaf with Diamond Ramps at Concord Rotary
Alternative 5A:	Alternative 5 with Hosmer Street Interchange, Piper/Taylor Roads Interchange, and CD (Collector and Distributor) Roads in Between
Alternative 5B:	Alternative 5 with Bridge Only at School/Wetherbee Streets, Interchange at Hosmer Street, and Bridge Only at Piper/Taylor Roads
Alternative 1A:	Alternative 1 (Signalized Intersection) at Concord Rotary with Interchange at School/Wetherbee Streets, Cul de Sac at Hosmer Street, and Bridge Only at Piper/Taylor Roads
Alternative 1B:	Alternative 1 with Flyover Connection at Wetherbee Street, Cul de Sac at School Street, Diamond Interchange at Hosmer Street, and Cul de Sac at Piper/Taylor Roads
Alternative 1C:	Alternative 1 with Interchange at School Street and a New Road west of Wetherbee Street, Cul de Sac at Wetherbee Street, Bridge Only at Hosmer Street, Interchange at Piper/Taylor Roads, and Relocation of Route 111/Route 2 Ramps

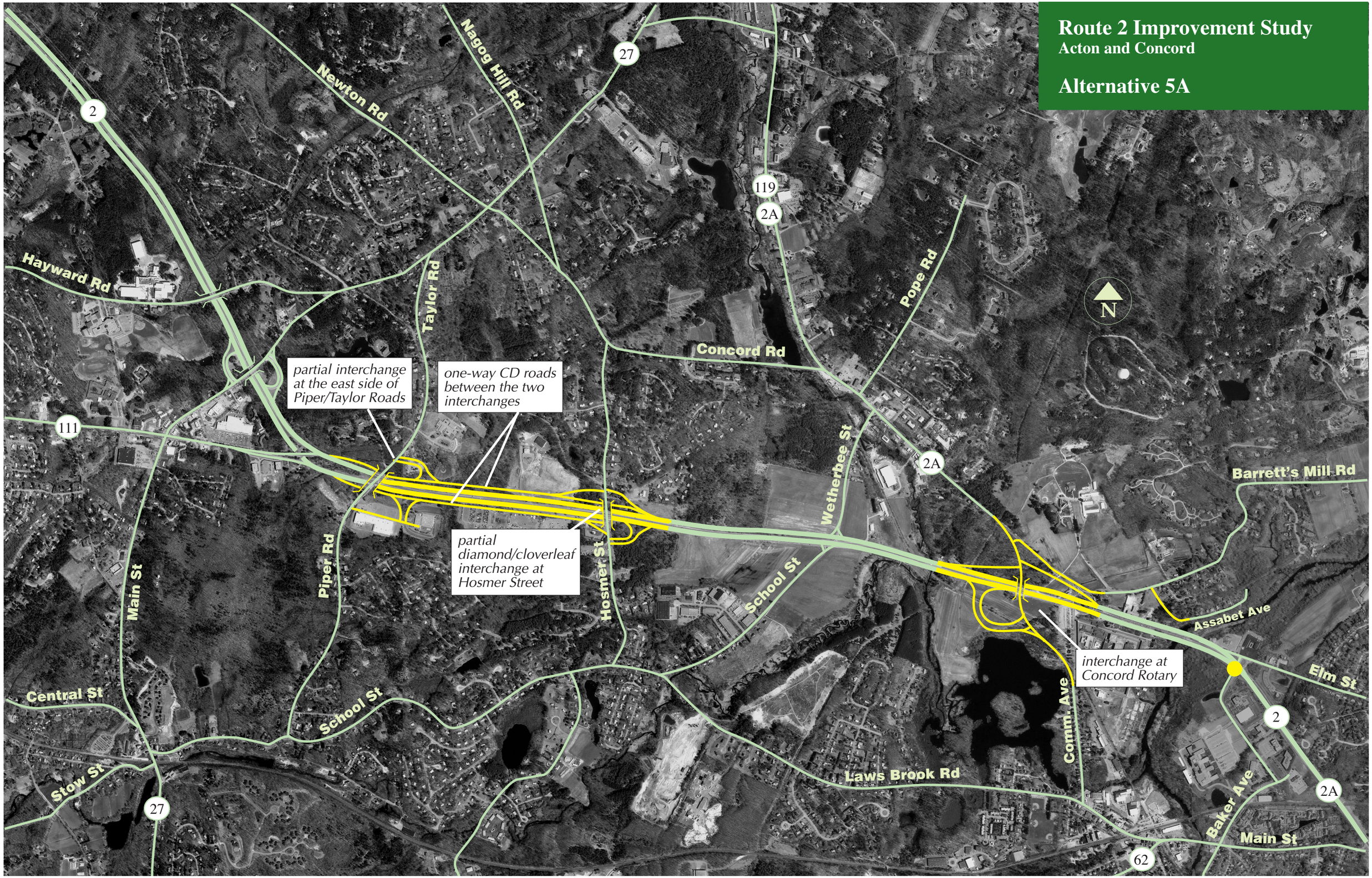
Route 2 Improvement Study
Acton and Concord

Alternative 5



Route 2 Improvement Study
Acton and Concord

Alternative 5A



Route 2 Improvement Study
Acton and Concord

Alternative 5B

two-way CD road north of Route 2 between Piper/Taylor roads and Hosmer Street

bridge only at Piper/Taylor roads

interchange at Hosmer Street

bridge only at School and Wetherbee Streets

interchange at Concord Rotary

2
111
27
119
2A
N
Hayward Rd
Newton Rd
Nagog Hill Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Assabet Ave
Elm St
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Comm. Ave
Laws Brook Rd
Baker Ave

Route 2 Improvement Study
Acton and Concord

Alternative 1A

2
Newton Rd
Nagog Hill Rd
27
119
2A
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
N
111
bridge only at Piper/Taylor roads
cul de sac at Hosmer Street
Wetherbee St
2A
Barrett's Mill Rd
Piper Rd
Hosmer St
School St
interchange at School and Wetherbee streets
Assabet Ave
Main St
traffic signal at Concord Rotary
Elm St
Central St
School St
Comm. Ave
2
Stow St
Laws Brook Rd
Baker Ave
2A
27
Main St
62

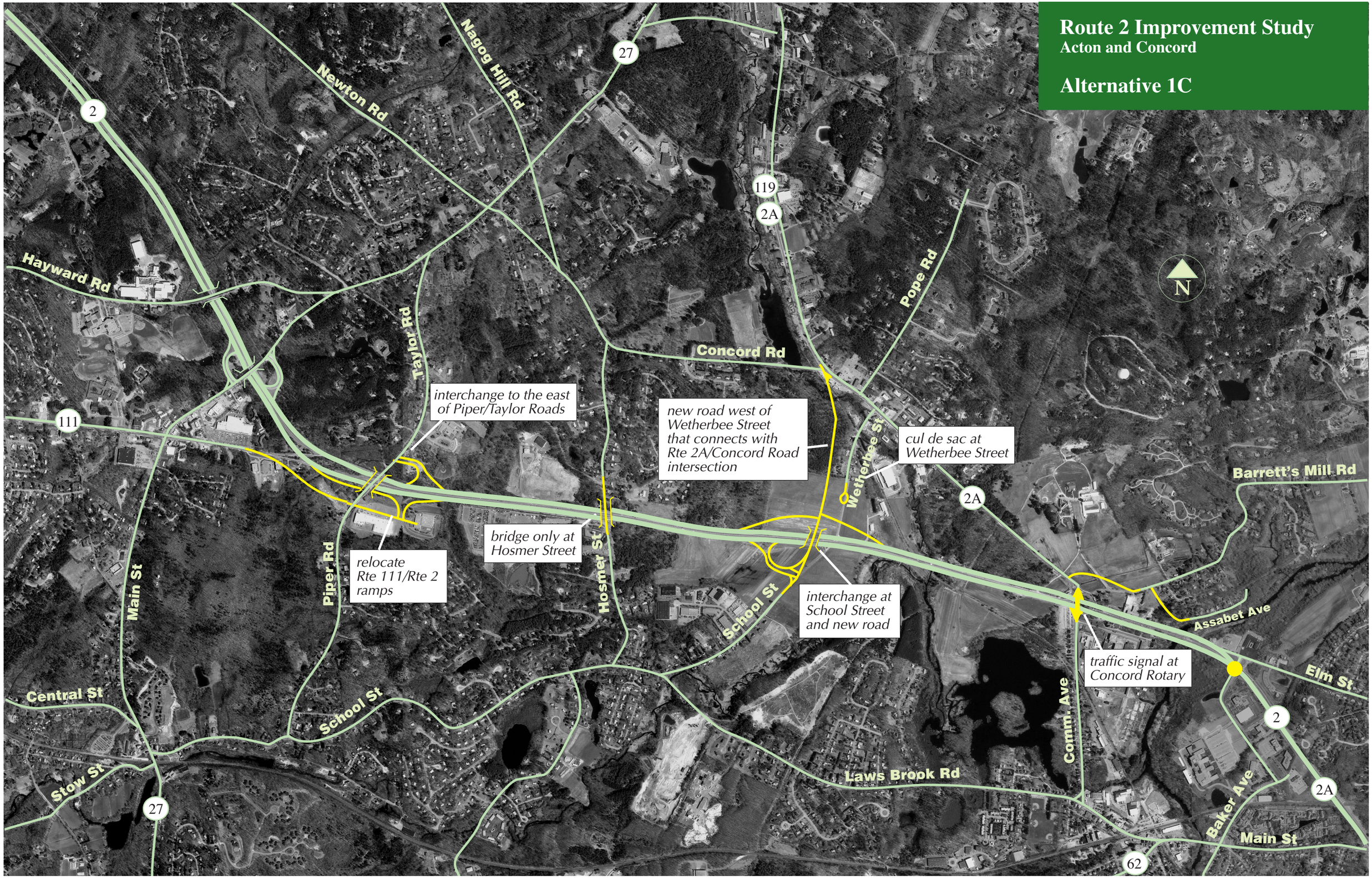
Route 2 Improvement Study
Acton and Concord

Alternative 1B

2
Newton Rd
Nagog Hill Rd
27
119
2A
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
N
111
cul de sac at
Piper/Taylor roads
diamond interchange
at Hosmer Street
cul de sac at
School Street
flyover at
Wetherbee Street
traffic signal at
Concord Rotary
Wetherbee St
Barrett's Mill Rd
Assabet Ave
Elm St
Piper Rd
Hosmer St
School St
Main St
Central St
Stow St
Laws Brook Rd
Comm. Ave
Baker Ave
62

Route 2 Improvement Study
Acton and Concord

Alternative 1C



APPENDIX D

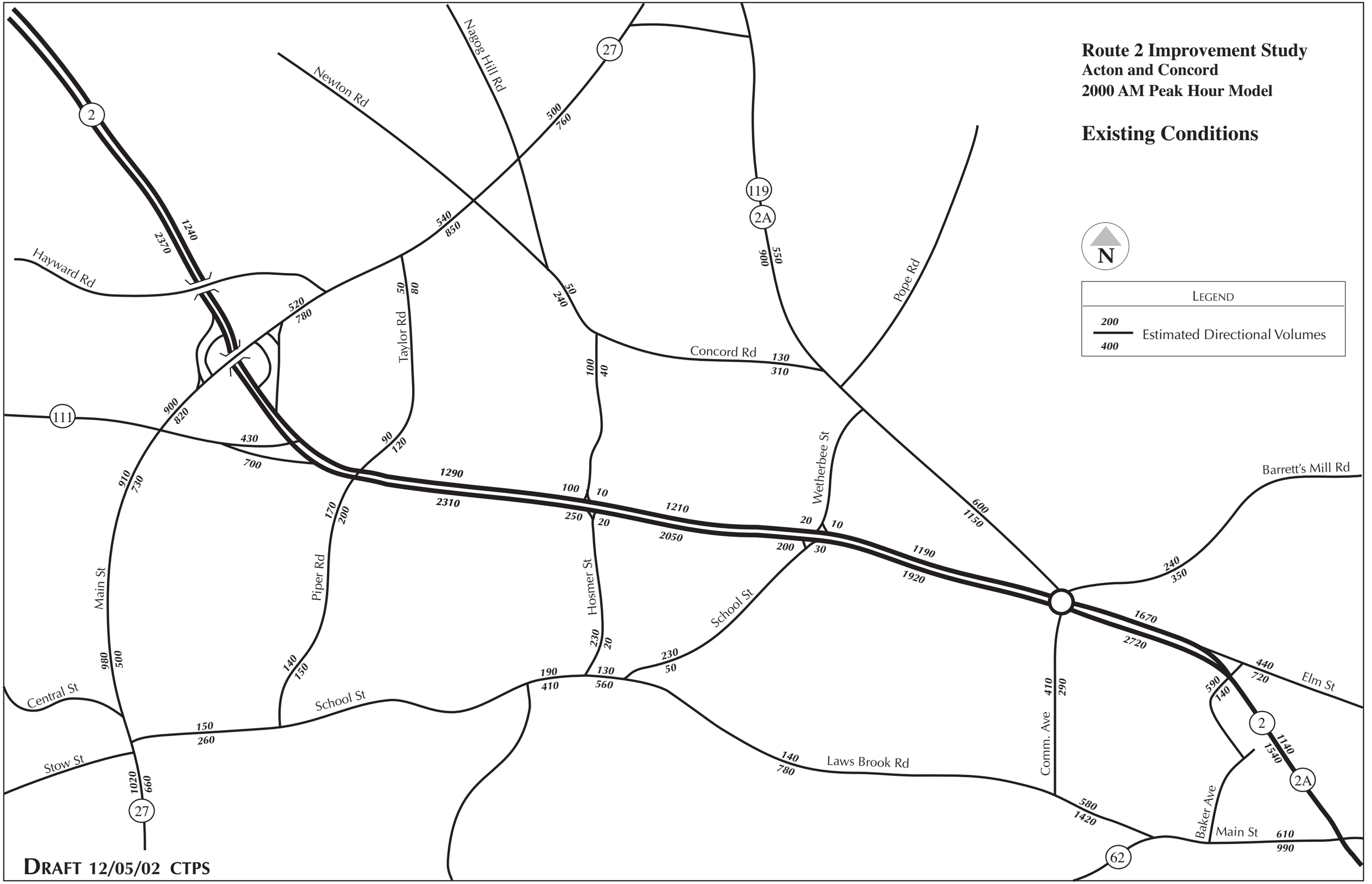
Existing Traffic Volumes and 2020 Forecasts for Alternative Packages

2000 AM Peak Hour Model: Existing Conditions
2020 AM Peak Hour Model: No Build
2020 AM Peak Hour Model: Alternative 5
2020 AM Peak Hour Model: Alternative 5A
2020 AM Peak Hour Model: Alternative 5B
2020 AM Peak Hour Model: Alternative 1A
2020 AM Peak Hour Model: Alternative 1B
2020 AM Peak Hour Model: Alternative 1C

2000 PM Peak Hour Model: Existing Conditions
2020 PM Peak Hour Model: No Build
2020 PM Peak Hour Model: Alternative 5
2020 PM Peak Hour Model: Alternative 5A
2020 PM Peak Hour Model: Alternative 5B
2020 PM Peak Hour Model: Alternative 1A
2020 PM Peak Hour Model: Alternative 1B
2020 PM Peak Hour Model: Alternative 1C

Route 2 Improvement Study
Acton and Concord
2000 AM Peak Hour Model

Existing Conditions



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LEGEND

200 / 400 — Estimated Directional Volumes

Route 2 Improvement Study
Acton and Concord
2020 AM Peak Hour Model

No-Build

N

LEGEND

200 / 400 — Estimated Directional Volumes

2 · 2A · 27 · 111 · 119 · 62

Newton Rd · Nagog Hill Rd · Hayward Rd · Taylor Rd · Concord Rd · Pope Rd · Wetherbee St · Barrett's Mill Rd · Main St · Piper Rd · Hosmer St · School St · Central St · Stow St · Parker St · Laws Brook Rd · Comm. Ave · Baker Ave · Elm St

1660 / 2420 · 660 / 920 · 620 / 870 · 60 / 270 · 60 / 90 · 630 / 860 · 950 / 950 · 480 / 780 · 100 / 130 · 960 / 850 · 1040 / 580 · 1100 / 720 · 180 / 270 · 150 / 220 · 220 / 280 · 1550 / 2460 · 110 / 280 · 10 / 30 · 120 / 50 · 1450 / 2220 · 20 / 330 · 10 / 90 · 260 / 20 · 260 / 420 · 320 / 100 · 640 / 990 · 680 / 1250 · 1430 / 1980 · 220 / 320 · 1880 / 2860 · 520 / 840 · 760 / 190 · 420 / 390 · 190 / 880 · 300 / 1290 · 1220 / 1620 · 640 / 1070

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Route 2 Improvement Study
Acton and Concord
2020 AM Peak Hour Model

Alternative 5

- **Concord Rotary Interchange**

N

LEGEND

200 / 400	Estimated Directional Volumes
-50 / +0	Traffic Increase/Decrease (Compared to No-Build Model)

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Parker St
Laws Brook Rd
Comm. Ave
Baker Ave
Elm St
Main St

2 27 111 119 2A 62

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Route 2 Improvement Study
Acton and Concord
2020 AM Peak Hour Model

Alternative 5A

- **Concord Rotary Interchange**
- **C/D Road on both sides of Route 2 between Hosmer St & Piper/Taylor Rd**
- **Hosmer St Interchange**
- **Piper/Taylor Rd Interchange**

LEGEND

200 / 400 — Estimated Directional Volumes

-50 / +0 — Traffic Increase/Decrease (Compared to No-Build Model)

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Route 2 Improvement Study
Acton and Concord
2020 AM Peak Hour Model

Alternative 5B

- **Concord Rotary Interchange**
- **Access Road on north side of Route 2 between Hosmer St & Piper/Taylor Rd**
- **Hosmer St Interchange**
- **Piper/Taylor Rd Bridge**
- **School St Bridge**

LEGEND

200 / 400	Estimated Directional Volumes
-50 / +0	Traffic Increase/Decrease (Compared to No-Build Model)

N

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Piper Rd
Hosmer St
Wetherbee St
School St
Barrett's Mill Rd
Main St
Central St
Stow St
Parker St
Laws Brook Rd
Comm. Ave
Baker Ave
Elm St

2, 27, 111, 119, 2A, 62

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Route 2 Improvement Study
Acton and Concord
2020 AM Peak Hour Model

Alternative 1A

- **Concord Rotary Signalization**
- **School St Interchange**
- **Hosmer St Cul de sac**
- **Piper/Taylor Rd Bridge**

LEGEND

200 / 400 — Estimated Directional Volumes

-50 / +0 — Traffic Increase/Decrease (Compared to No-Build Model)

N

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Parker St
Laws Brook Rd
Comm. Ave
Elm St
Baker Ave
Main St

2 111 27 119 2A 62

DRAFT 12/5/02 CTPS

Route 2 Improvement Study
Acton and Concord
2020 AM Peak Hour Model

Alternative 1B

- **Concord Rotary Signalization**
- **School St Flyover**
- **Hosmer St Interchange**
- **Remove Piper/Taylor Rd Cul de sac**

Legend	
200 / 400	Estimated Directional Volumes
-50 / +0	Traffic Increase/Decrease (Compared to No-Build Model)

N

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Parker St
Laws Brook Rd
Comm. Ave
Baker Ave
Elm St

2 111 27 119 2A 62

DRAFT 12/5/02 CTPS

Route 2 Improvement Study
Acton and Concord
2020 AM Peak Hour Model

Alternative 1C

- **Concord Rotary Signalization**
- **School St Interchange via new connector road**
- **Hosmer St Bridge**
- **Piper/Taylor Rd Interchange**
- **Rt 111 Realignment**

Legend	
200 / 400	Estimated Directional Volumes
-50 / +0	Traffic Increase/Decrease (Compared to No-Build Model)

N

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Parker St
Laws Brook Rd
Comm.Ave
Baker Ave
Elm St

2 2A 27 111 119 62

DRAFT 12/5/02 CTPS

Route 2 Improvement Study
Acton and Concord
2000 PM Peak Hour Model

Existing Conditions

N

LEGEND

200 / 400 — Estimated Directional Volumes

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Comm. Ave
Laws Brook Rd
Baker Ave
Elm St

2 2150 1190
27 890 650
970 750
930 780
780 960
910 630
900 830
770 830
920 1260
111
90 60
70 120
80 250
140 200
100 140
80 30
2290 1500
50 10
80 30
2230 1450
30 10
30 70
2200 1490
1230 770
119
2A 620 880
380 270
2650 2000
720 450
150 340
2 1750 1400
2A
890 790
62
830 640
300 150
290 180
60 40
60 50
350 740
130 100
300 150

DRAFT 12/05/02 CTPS

Route 2 Improvement Study
Acton and Concord
2020 PM Peak Hour Model

No-Build

N

LEGEND

200 / 400 — Estimated Directional Volumes

Nagog Hill Rd
Newton Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Parker St
Comm. Ave
Laws Brook Rd
Baker Ave
Elm St

2 2A 27 111 119 62

950 780
1070 860
2280 1430
980 880
110 80
160 190
710 930
860 1050
990 790
80 140
2480 1810
80 180
10 30
2390 1660
90 30
10 70
1380 820
2300 1690
350 250
2790 2120
770 470
240 490
1780 1460
1000 900
140 300
80 140
880 920
190 230
390 170
80 40
70 50
110 30
400 810
370 160
1140 680
1040 1350
220 100
860 760

DRAFT 12/5/02 CTPS

Route 2 Improvement Study
Acton and Concord
2020 PM Peak Hour Model

Alternative 5

- **Concord Rotary Interchange**

N

LEGEND

200 / 400 — Estimated Directional Volumes

-50 / +0 — Traffic Increase/Decrease (Compared to No-Build Model)

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Piper Rd
Hosmer St
School St
Main St
Central St
Stow St
Parker St
Laws Brook Rd
Comm. Ave
Baker Ave
Elm St

2 2A 27 111 119 62

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Route 2 Improvement Study
Acton and Concord
2020 PM Peak Hour Model

Alternative 5A

- **Concord Rotary Interchange**
- **C/D Road on both sides of Route 2 between Hosmer St & Piper/Taylor Rd**
- **Hosmer St Interchange**
- **Piper/Taylor Rd Interchange**

LEGEND

200 / 400	Estimated Directional Volumes
-50 / +0	Traffic Increase/Decrease (Compared to No-Build Model)

N

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Parker St
Laws Brook Rd
Comm.Ave
Baker Ave
Elm St

2 111 27 119 2A 62

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Route 2 Improvement Study
Acton and Concord
2020 PM Peak Hour Model

Alternative 5B

- **Concord Rotary Interchange**
- **Access Road on north side of Route 2 between Hosmer St & Piper/Taylor Rd**
- **Hosmer St Interchange**
- **Piper/Taylor Rd Bridge**
- **School St Bridge**

LEGEND

200 / 400	Estimated Directional Volumes
-50 / +0	Traffic Increase/Decrease (Compared to No-Build Model)

N

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Barrett's Mill Rd
Wetherbee St
Piper Rd
Hosmer St
School St
Main St
Central St
Stow St
Parker St
Laws Brook Rd
Comm. Ave
Baker Ave
Elm St

2 · 27 · 119 · 2A · 111 · 62

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Route 2 Improvement Study
Acton and Concord
2020 PM Peak Hour Model

Alternative 1A

- **Concord Rotary Signalization**
- **School St Interchange**
- **Hosmer St Cul de sac**
- **Piper/Taylor Rd Bridge**

Legend	
200 / 400	Estimated Directional Volumes
-50 / +0	Traffic Increase/Decrease (Compared to No-Build Model)

N

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Route 2 Improvement Study
Acton and Concord
2020 PM Peak Hour Model

Alternative 1B

- **Concord Rotary Signalization**
- **School St Flyover**
- **Hosmer St Interchange**
- **Remove Piper/Taylor Rd Cul de sac**

Legend	
200 / 400	Estimated Directional Volumes
-50 / +0	Traffic Increase/Decrease (Compared to No-Build Model)

N

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Piper Rd
Hosmer St
School St
Wetherbee St
Barrett's Mill Rd
Main St
Central St
Stow St
Parker St
Laws Brook Rd
Comm. Ave
Baker Ave
Elm St

2 111 27 119 2A 62

330 500 220 230 250 150 120 680

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Route 2 Improvement Study
Acton and Concord
2020 PM Peak Hour Model

Alternative 1C

- **Concord Rotary Signalization**
- **School St Interchange via new connector road**
- **Hosmer St Bridge**
- **Piper/Taylor Rd Interchange**
- **Rt 111 Realignment**

Legend	
200 / 400	Estimated Directional Volumes
-50 / +0	Traffic Increase/Decrease (Compared to No-Build Model)

N

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Parker St
Laws Brook Rd
Comm.Ave
Baker Ave
Elm St

2 2A 27 111 119 62

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APPENDIX E

Evaluation of Improvement Alternatives

Table E-1 Preliminary Comparison of Concord Rotary Design Alternatives, Concord
Table E-2 Preliminary Comparison of Route 2 Improvement Packages, Acton and Concord

TABLE E-1
Preliminary Comparison of Concord Rotary Design Alternatives
CONCORD

Alternative #	Concept Elements	Purpose	Benefits		Impacts					
			Improve Traffic Operations	Improve Safety	Historic Impacts	Wetland Impacts	Agricultural Impacts	Right of Way Impacts	Visual Impacts	Construction Cost and Traffic Disruption
No Build	Existing		**NO IMPACT** Long delays at Rotary and at Route 2A. High delays encourage cut-throughs south of Route 2.	**NO IMPACT** Second high crash location along Route 2. Unfriendly pedestrian environment.	**NO IMPACT**	**NO IMPACT**	**NO IMPACT**	**NO IMPACT**	**NO IMPACT**	**NO IMPACT**
1	Convert Rotary to an at-grade intersection with traffic signal and appropriate lane configuration at Concord Rotary. Install another signal at Route 2A/Barrett's Mill Road, including coordination with Route 2 signal.	Provide for protected traffic flows at Route 2/Route 2A/Commonwealth Avenue.	**LOW** Traffic operations will improve in the AM peak hour with the appropriate cross section at Route 2 and Route 2A. However, PM peak hour delays will persist. Favorable State Police and Prison access.	**LOW** Provides for a safer driving environment; eliminates the feeling of "uncertainty" for Rotary drivers.	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW** **Rough Cost Estimate**: App. $4 million. **LOW** **Traffic Disruption:** Some impacts from construction detours and lane-shifting.
2	Reconstruct the Rotary with Route 2 passing under an elevated Rotary. Barrett's Mill Road and Commonwealth Avenue will continue to be connected to it and four slip ramps will be constructed for Route 2 on/off traffic. The structure would be built somewhat to the west of the existing Rotary and it would include two bridges and retaining walls for the ramps to the east. It also requires depressing Route 2.	Provide for grade-separated operation while maintaining existing unsignalized Rotary operation.	**MEDIUM** Significant improvements for traffic operations along Route 2. Route 2A, Commonwealth Avenue, and Barrett's Mill Road queues and delays will improve significantly. Speeds around the Rotary will increase. Somewhat increased travel for State Police. Prison Access from Commonwealth Avenue.	**LOW** Significant safety improvements for Route 2 traffic. Reduced safety for Route 2A, Route 2 ramp traffic and minor road traffic around the Rotary. Improved pedestrian safety around Prison parking lot due to the relocation of Commonwealth Avenue.	**LOW**	**MEDIUM**	**MEDIUM** .	**HIGH**	**HIGH**	**HIGH** **Rough Cost Estimate:** Between $20 and $25 million. **HIGH** **Traffic Disruption:** Construction staging will be required.

NOTE
Benefits: HIGH (best rating) **to LOW** (worst rating)
Impacts: LOW (best rating) **to HIGH** (worst rating)

TABLE E-1 (continued)
Preliminary Comparison of Concord Rotary Design Alternatives
CONCORD

Alternative #	Concept Elements	Purpose	Benefits		Impacts					
			Improve Traffic Operations	**Improve Safety**	**Historic Impacts**	**Wetland Impacts**	**Agricultural Impacts**	**Right of Way Impacts**	**Visual Impacts**	**Construction Costs and Traffic Disruption**
3	A diamond interchange at Concord rotary with two coordinated traffic signals at the ends of the bridge. Relocated Commonwealth Avenue.	Provide grade-separation for improved traffic operations and safety.	**MEDIUM** Grade separation and traffic control is expected to have significant improvement on traffic operations. Extra lanes and exclusive signal phases will be required for left turns at traffic signals.	**MEDIUM** Significant improvement in safety is expected from grade separation and protected left turns at signals.	**LOW**	**LOW**	**LOW** Minor agricultural and commercial impacts.	**MEDIUM**	**HIGH**	**MEDIUM** **Rough Cost Estimate**: App. $15 million **MEDIUM** **Traffic Disruption:** Impacts from construction staging
4	A half cloverleaf interchange at Concord Rotary on the western side of Commonwealth Avenue/Route 2A with two coordinated traffic signals at the ends of the bridge. Route 2 will be depressed.	Provides for grade-separated operation and fewer left turns at the traffic signals on the bridge.	**MEDIUM** The loop ramps allow for significantly improved traffic operations, especially for the Route 2A eastbound traffic in the morning. Somewhat more circuitous access for State Police vehicles.	**MEDIUM** Further improves safety, however it leaves parking lot inside southern loop ramp. Pedestrians are required to cross Commonwealth Avenue at signal.	**LOW**	**MEDIUM**	**HIGH** Agricultural and commercial impacts from the construction of the loop ramps.	**MEDIUM**	**HIGH**	**MEDIUM** **Rough Cost Estimate**: App. $20 million **HIGH** **Traffic Disruption:** Impacts from construction detours and lane-shifting
5	Half diamond interchange at the north side of Route 2 and a quarter cloverleaf at the southwestern quadrangle of the interchange. Relocate Commonwealth Avenue.	Provides for grade-separation and turns major movements into right turns.	**HIGH** This design appears to be superior to all others because the two highest traffic movements, the eastbound traffic from Route 2A in the morning and the westbound traffic from Route 2 to Route 2A in the evening peak are right turns.	**HIGH** The heaviest of all traffic movements on the bridge over Route 2 are right turns.	**MEDIUM** The loop ramp may have to be designed around the cemetery.	**LOW**	**HIGH**	**MEDIUM**	**MEDIUM**	**MEDIUM** **Rough Cost Estimate**: App. $15 million **MEDIUM** **Traffic Disruption:** Medium disruption of traffic
6	Half diamond interchange at the south side of Route 2 and a quarter cloverleaf at the northwestern quadrangle of the interchange. Route 2 will be depressed.	Provides for grade separation.	**LOW** The high Route 2A traffic volume from/to Route 2 is required to turn left at both signals.	**MEDIUM** Safe pedestrian crossing from Prison Parking lot may be compromised.	**LOW**	**LOW**	**HIGH**	**MEDIUM**	**HIGH**	**MEDIUM** **Rough Cost Estimate:** App. $20 million **HIGH** **Traffic Disruption:** Impacts from construction staging and lane shifting
7	Ramps on the north side of Route 2 are located to the west of the Concord Municipal light Plant. Ramps on south side are partial cloverleaf. Relocated Commonwealth Ave.	Provides for grade separation. Ensures a higher standard design for ramps at north side of Route 2.	**MEDIUM** The loop ramps allow for significantly improved traffic operations, especially for the Route 2A eastbound traffic in the morning. Somewhat more circuitous access for State Police vehicles. Unprotected Barrett's Mill Road lefts.	**MEDIUM**	**LOW**	**MEDIUM**	**HIGH** Agricultural and wooded land impacts.	**MEDIUM**	**LOW**	**MEDIUM** **Rough Cost Estimate**: App. $15 million **MEDIUM** **Traffic Disruption:** Medium traffic disruption

TABLE E-2
Preliminary Comparison of Route 2 Improvement Packages
ACTON AND CONCORD

Package #	Concept Elements	Purpose	Benefits				Impacts	
			Minimize Cut-Throughs	**Reduce Delay**	**Improve Safety**	**Improve Local/Emergency Access**	**Right of Way Impacts**	**Construction Cost and Traffic Disruption**
No Build	Existing		Long delays at Rotary encourage cut-throughs. Eastbound Route 2 traffic is diverted via Piper, Hosmer, and School streets in Acton to Laws Brook Road and Main Street in Concord.	Long delays for Route 2 and Route 2A traffic due to the yield-control operation of the Rotary.	High crash location. Unfriendly pedestrian environment.	Available access at Piper /Taylor and Concord Rotary is inadequate. Pedestrian crossing of Commonwealth Avenue difficult.	No takings involved	No costs involved
5*	Interchange at Concord Rotary; realignment of Commonwealth Avenue to the west so that parking becomes part of Prison Campus	Provide for safer traffic processing and pedestrian circulation. Reduce delays. Reduce cut-throughs.	**MEDIUM** Significantly improves cut-through problem by removing 400-600 vehicles from Law Brooks Road to Route 2. Southbound Cut-through traffic on Piper, Hosmer, and School streets is eliminated. Traffic increases northbound School Street to access Route 2.	**MEDIUM** Practically eliminates Route 2 traffic delays between Piper/Taylor streets and Commonwealth Avenue. Improves Route 2A and local traffic delay. Reduced congestion along Laws Brook Road.	**LOW** Significantly improves safety by eliminating conflicts between Route 2 traffic and Route 2A Commonwealth Avenue traffic and allowing for traffic signal control for remaining conflicts. Eliminates traffic pedestrian conflicts by relocating Commonwealth Avenue. Likely delays at northbound School Street as more traffic will attempt to access Route 2 eastbound at this point.	**LOW** Maintains present local access. Improves pedestrian circulation as prison parking is moved inside the prison campus.	**LOW** Impacts on agricultural land and commercial business.	**LOW** **Rough Cost Estimate**: App. $15 million. **MEDIUM** **Traffic Disruption:** Major construction detours and lane-shifting
5A	Interchange at Concord Rotary; partial diamond/cloverleaf interchange at Hosmer Street; partial interchange at the east side of Piper/Taylor roads; one-way CD roads between the latter two interchanges	Provide, in addition to all benefits listed above at Concord Rotary, two grade-separated crossings of Route 2 in Acton, including on and off ramps for local access.	**MEDIUM** In addition to traffic diversions caused by concept 5 above, some of Route 2A traffic (south of Concord Road) is diverted to Route 2 via Hosmer Street. Increased northbound traffic along Hosmer and School streets.	**MEDIUM** Practically eliminates Route 2 delays between Piper/Taylor streets and Commonwealth Avenue, and along Laws Brook Road. Reduced southbound delays along Piper/ Taylor, Hosmer, and School streets; more congestion in the northbound direction as traffic is attracted to improved Route 2 access. Route 27 delay reductions.	**HIGH** Significantly improves safety at present Concord Rotary, and Piper/Taylor and Hosmer streets. Some safety concerns at School Street northbound right turns as additional northbound traffic attempts to enter Route 2 there.	**MEDIUM** Maintains local access and improves pedestrian circulation at Concord Rotary. Significantly improves local access, including emergency response at Piper /Taylor roads and Hosmer streets.	**HIGH** ROW impacts as in concept 5 above for Concord Rotary grade separation. In addition, land takings associated with the construction of ramps at Hosmer Street and Piper/Taylor roads, and C/D roads.	**HIGH** **Rough Cost Estimate**: App. $50 million. **MEDIUM** **Traffic Disruption:** Construction staging; construction impacts at Piper /Taylor streets
5B	Concord Rotary Interchange; bridge only at Piper/ Taylor roads and School Street; interchange at Hosmer Street; two-way CD road north of Route 2 between Piper/Taylor roads and Hosmer Street	Provide, in addition to the interchange at Concord Rotary, three more crossings of Route 2 for additional local and emergency access in Acton. One of the crossings provides full movements.	**LOW** Hosmer Street bridge carries significantly higher traffic than School and Piper/ Taylor bridges. Laws Brook Road benefits are lower as a smaller amount of its traffic diverts to Route 2.	**MEDIUM** Lower delays along Route 27, Route 2A south of Concord Road, and Laws Brook Road.	**HIGH** Significantly improves safety and emergency response as it eliminates circuitous travel and allows for multiple, direct Route 2 crossings.	**HIGH** Significantly improves local access and emergency response across Route 2.	**MEDIUM** Same as in concept 5A in the area of Hosmer Street and Concord Rotary. Impacts within existing ROW at Piper/Taylor and School streets.	**MEDIUM** **Rough Cost Estimate**: App. $40 million **MEDIUM** **Traffic Disruption:** Construction staging

NOTE
Benefits: HIGH (best rating) **to LOW** (worst rating)
Impacts: LOW (best rating) **to HIGH** (worst rating)
* This table compares the various alternative packages based on expected benefits and impacts in the context of the entire Route 2 corridor between Route 111 in Acton and Baker Avenue in Concord; while comparison in the previous table (Table E-1) focuses only on the rotary design alternatives and expected benefits and impacts of the area surrounding the rotary. Therefore, ratings of Alternative 5, although under the same column title, may be different in Table E-1 and Table E-2.

TABLE E-2 (continued)
Preliminary Comparison of Route 2 Improvement Packages
ACTON AND CONCORD

Package #	Concept Elements	Purpose	Benefits				Impacts	
			Minimize Cut-Throughs	Minimize Delay	Improve Safety	Improve Local/Emergency Access	Right of Way Impacts	Construction Costs and Traffic Disruption
1	Convert Rotary to an at-grade intersection with traffic signal; and appropriate lane configuration. Install another signal at Route 2A/Barrett's Mill Road, including coordination with Route 2 signal	Provide for protected traffic flows at Route 2/Route 2A/Commonwealth Avenue.	**LOW** Traffic operations will improve in the AM peak hour with appropriate cross section at Route 2 and Route 2A. However, PM peak hour delays will persist. Favorable State Police and Prison access.	**LOW** Provides for safer driving environment; eliminates the feeling of "uncertainty" for Rotary drivers.	**LOW**	**LOW**	**LOW**	**LOW** **Rough Cost Estimate:** App. $4 million. **LOW** **Traffic Disruption:** Some impacts from construction detours and lane-shifting.
1A	Interchange at School/Wetherbee streets; cul de sac at Hosmer Street; bridge only at Piper /Taylor roads; traffic signal at Concord Rotary	Provides for earlier interception, collection and distribution of Route 2, Route 2A, and local traffic; a total of two crossings across Route 2 in Acton.	**HIGH** Significant amount of diversions from Laws Brook Road and Route 2A to Route 2 via School /Wetherbee streets interchange.	**HIGH** Reduced delays along Route 27, Route 2A (south of Concord Road), and Laws Brook Road.	**HIGH** Significantly improves safety and emergency response. It allows for two grade-separated crossings in Acton (one a full interchange) and one traffic signal-controlled crossing in Concord.	**MEDIUM** It provides two safe crossings of Route 2. It eliminates access from /to Hosmer Street and Piper/Taylor roads. It allows for all movements at School/Wetherbee streets and at Concord Rotary.	**LOW** Mostly agricultural impacts.	**LOW** **Rough Cost Estimate**: App. $20 million **LOW** **Traffic Disruption:** Minor disruption of traffic at all construction sites
1B	Fly-over at Wetherbee Street; cul de sac at School Street; diamond interchange at Hosmer Street; cul de sac at Piper/Taylor roads; traffic signal at Concord Rotary	Provides for desegregation of traffic flow ex-changes at two grade-separated facilities, Hosmer and Wetherbee streets.	**MEDIUM** Diversions to Route 2 from Route 2A, south of Concord Road, are very high; diversions from Laws Brook Road are low.	**MEDIUM** Reduced delays along Route 27 and Route 2A (south of Concord Road).	**HIGH** Significantly improves safety at present Concord Rotary location and provides one additional safe crossings.	**MEDIUM** Provides crossing at Hosmer and access to Route 2 from the north at Wetherbee Street.	**MEDIUM** Land takings for ramps at Hosmer Street and at Wetherbee Street near Route 2.	**MEDIUM** **Rough Cost Estimate**: App. $25 million **LOW** **Traffic Disruption:** Medium disruption of traffic
1C	Cul de sac at Wether-bee Street; new road west of Wetherbee Street that connects with Route 2A/Con-Cord Road intersection; interchange at School Street/new road; bridge only at Hosmer Street; interchange to the west of Piper/ Taylor roads; relocate Route 11/Route 2 ramps; traffic signal at Rotary.	Provides for three crossings over Route 2 in Acton, one of which is only a bridge. Relocates the terminus of Route 111 from Route 2 to Piper Road and the proposed interchange there. Includes new road parallel to Wetherbee Street and connected directly into Route 2A/Concord Road.	**HIGH** Traffic diversions from Laws Brook Road and Route 2A (south of Concord Road) to Route 2.	**HIGH** Reduced delays along Route 27, Route 2A (south of Concord Road), and Laws Brook Road.	**HIGH** Provides three safe crossings of Route 2 with full movements at two locations. Relocation of the Route 111 terminus to Piper Road will improve safety significantly at that location.	**HIGH** Major improvement to Route 2 access and emergency response.	**HIGH** Land takings for ramps at Wetherbee and School streets, Piper and Taylor roads, and new alignment of Route 111.	**MEDIUM** **Rough Cost Estimate:** App. $35 million **MEDIUM** **Traffic Disruption:** Medium disruption during construction

APPENDIX F

Analysis of Additional Acton Packages

Summary of Additional Acton Packages

2020 AM Peak Hour Model:	Base Case (Alternative 5)
2020 AM Peak Hour Model:	Case Study 1 (Alternative 5 with Bridge and Right-Turn-Only Access to Route 2 at School/Wetherbee Streets)
2020 AM Peak Hour Model:	Case Study 2 (Alternative 5 with Bridge Only at School/Wetherbee Streets)
2020 AM Peak Hour Model:	Case Study 3 (Alternative 5 with Cul de Sac at Wetherbee Street)
2020 PM Peak Hour Model:	Base Case (Alternative 5)
2020 PM Peak Hour Model:	Case Study 1 (Alternative 5 with Bridge and Right-Turn-Only Access to Route 2 at School/Wetherbee Streets)
2020 PM Peak Hour Model:	Case Study 2 (Alternative 5 with Bridge Only at School/Wetherbee Streets)
2020 PM Peak Hour Model:	Case Study 3 (Alternative 5 with Cul de Sac at Wetherbee Street)

Summary of Additional Acton Packages

This analysis was conducted based on the request from Acton (see Town of Acton letter to MassHighway, June 27, 2002 in Appendix A). It aims to examine the traffic impact of three different roadway design treatments at Route 2/Wetherbee Street assuming a built Alternative 5 at Concord Rotary.

Base Case
Alternative 5 (Partial Cloverleaf Interchange with Diamond Ramps on North Side) at Concord Rotary

Case Study 1
Concept Elements:
- Alternative 5 at Concord Rotary
- School/Wetherbee Street Bridge with Right-Turn Only Access to Route 2

Traffic Impact predicted by traffic model:
- The bridge would carry about 200 vehicles in both directions in the AM peak hour and about 200 southbound and 400 northbound vehicles in the PM peak hour
- About 200 (AM peak hour) to 400 (PM peak hour) traffic increase on School Street
- About 150 to 250 traffic increase on Parker Street
- About 100 to 150 traffic decrease on Route 27 south of Route 2
- On the north side of Route2, about 100 to 150 vehicles would be shifted from Route 27 to Route 2A/119

Case Study 2
Concept Elements:
- Alternative 5 at Concord Rotary
- School/Wetherbee Street Bridge with No Access to Route 2

Traffic Impact predicted by traffic model:
- The bridge would carry about 200 vehicles in both directions in the AM peak hour and about 200 southbound and 400 northbound vehicles in the PM peak hour
- About 150 to 200 vehicles would be shifted from School Street to Laws Brook Road
- About 150 to 250 traffic increase on Parker Street
- About 100 to 150 traffic decrease on Route 27 south of Route 2
- On the north side of Route2, about 100 to 150 vehicles would be shifted from Route 27 to Route 2A/119

Case Study 3
Concept Elements:
- Alternative 5 at Concord Rotary
- Disconnecting Wetherbee Street

Traffic Impact predicted by traffic model:
- Slightly traffic decrease on Wehterbee Street
- Slightly traffic increase on Concord Road and Hosmer Street north of Route2

Route 2 Improvement Study
Acton and Concord
2020 AM Peak Hour Model

Base Case (Alternative 5)
- **Concord Rotary Interchange**

N

LEGEND

200 / 400 — Estimated Directional Volumes

2 · 2A · 27 · 111 · 119 · 62

Hayward Rd · Newton Rd · Nagog Hill Rd · Taylor Rd · Concord Rd · Pope Rd · Wetherbee St · Barrett's Mill Rd · Elm St · Main St · Piper Rd · Hosmer St · School St · Central St · Stow St · Parker St · Laws Brook Rd · Comm. Ave · Baker Ave

2420/1660 · 870/630 · 840/570 · 230/80 · 70/70 · 1020/650 · 590/820 · 910/920 · 510/850 · 120/120 · 60/120 · 320/60 · 920/830 · 2510/1610 · 260/110 · 150/100 · 2400/1610 · 100/20 · 330/10 · 1250/610 · 2620/1600 · 270/550 · 320/220 · 1200/540 · 3280/1880 · 880/540 · 820/100 · 1890/1270 · 220/230 · 240/120 · 340/80 · 490/200 · 950/540 · 140/160 · 260/150 · 1030/720 · 360/130 · 660/430 · 290/900 · 650/700

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Route 2 Improvement Study
Acton and Concord
2020 AM Peak Hour Model

Case Study 1

- **Concord Rotary Interchange**
- **School/Wetherbee St Bridge with right-turn only access to Route 2**

LEGEND

200/400 — Estimated Directional Volumes

-50/+0 — Traffic Increase/Decrease (Compared to No-Build Model)

N

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Laws Brook Rd
Comm. Ave
Elm St
Baker Ave
Parker St
Main St

2 27 119 2A 111 62

210 180 20 350

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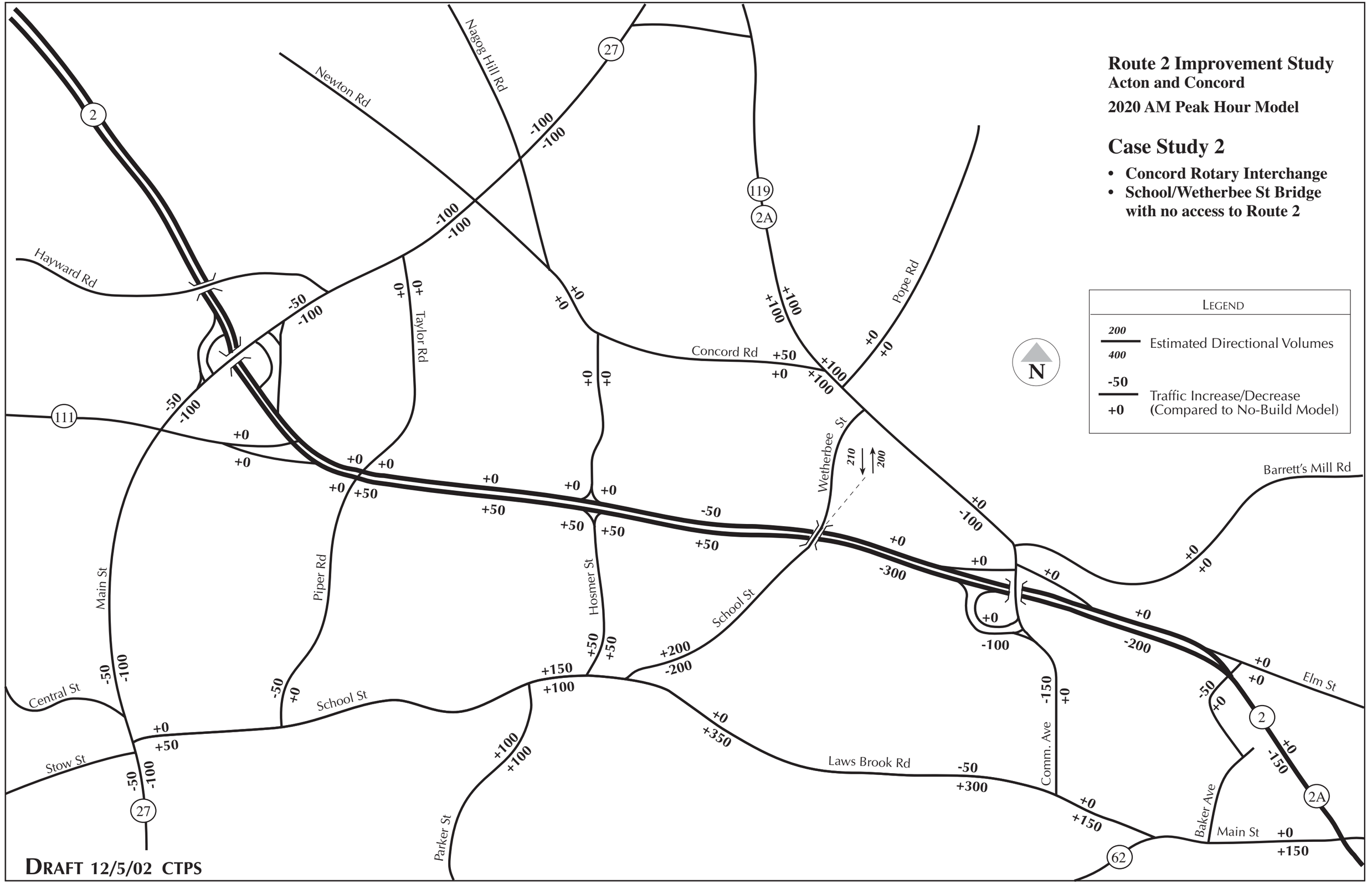
Route 2 Improvement Study
Acton and Concord

2020 AM Peak Hour Model

Case Study 2

- **Concord Rotary Interchange**
- **School/Wetherbee St Bridge with no access to Route 2**



N

LEGEND

200 / 400	Estimated Directional Volumes
-50 / +0	Traffic Increase/Decrease (Compared to No-Build Model)

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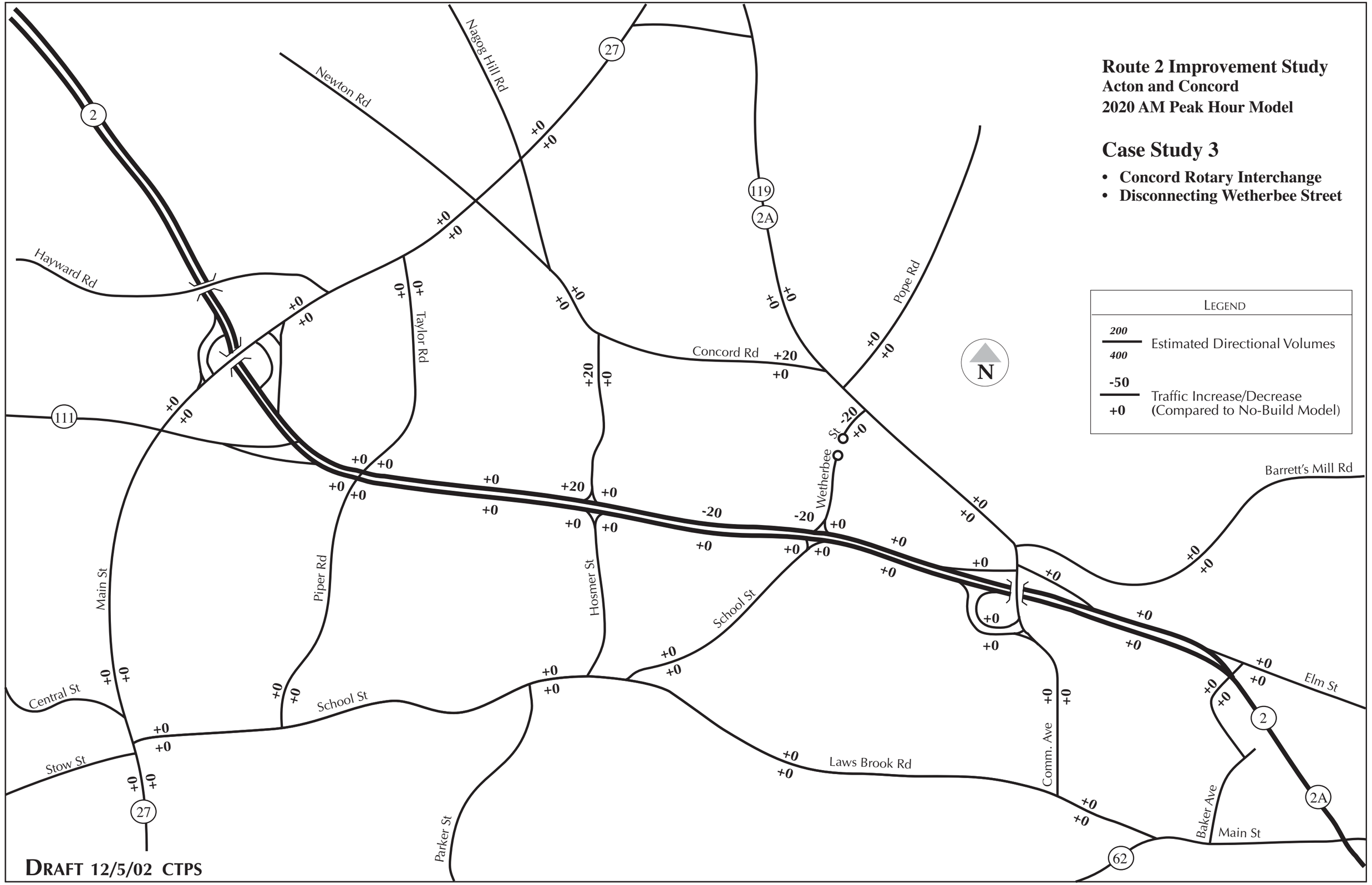
Route 2 Improvement Study
Acton and Concord
2020 AM Peak Hour Model

Case Study 3

- **Concord Rotary Interchange**
- **Disconnecting Wetherbee Street**



Route 2 Improvement Study
Acton and Concord
2020 PM Peak Hour Model

Base Case (Alternative 5)
- **Concord Rotary Interchange**

N

LEGEND

200 / 400 — Estimated Directional Volumes

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Parker St
Laws Brook Rd
Comm. Ave
Baker Ave
Elm St

2 2280 1430 1070 750 900 660 27 110 50 170 170 119 2A 790 1090 960 810 850 970 1120 780 80 110 2700 1810 60 180 140 30 2820 1700 50 50 30 220 1300 840 2820 1880 520 770 500 350 770 400 3050 2250 800 500 300 520 2 1900 1500 2A 111 980 830 120 160 160 150 870 850 80 40 50 180 170 150 100 100 1010 1270 27 540 850 990 580 160 50 62 780 650

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Route 2 Improvement Study
Acton and Concord
2020 PM Peak Hour Model

Case Study 1

- **Concord Rotary Interchange**
- **School/Wetherbee St Bridge with right-turn only access to Route 2**

Legend	
200 / 400	Estimated Directional Volumes
-50 / +0	Traffic Increase/Decrease (Compared to No-Build Model)

N

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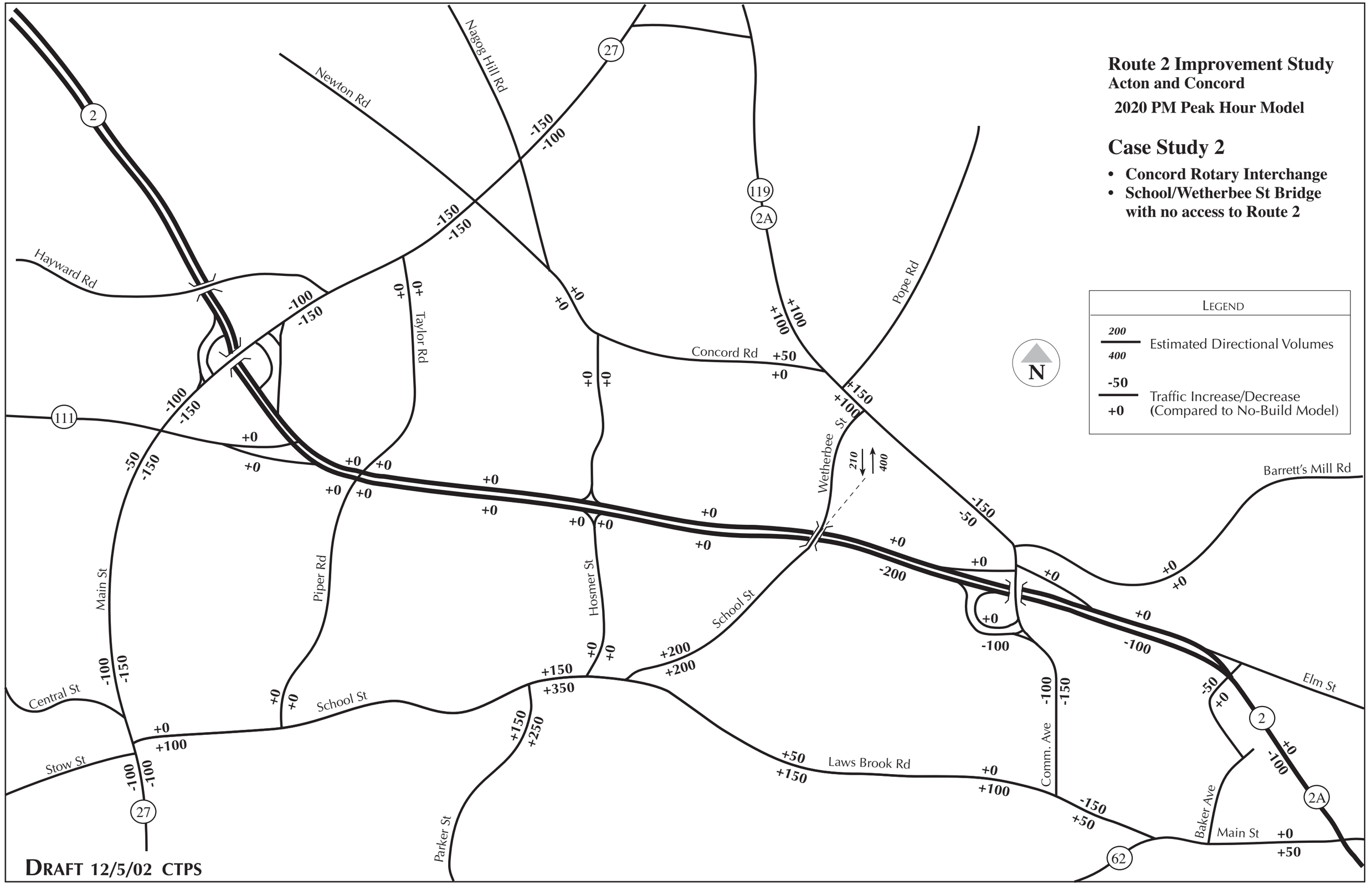
Route 2 Improvement Study
Acton and Concord
2020 PM Peak Hour Model

Case Study 2

- **Concord Rotary Interchange**
- **School/Wetherbee St Bridge with no access to Route 2**



LEGEND

200/400 Estimated Directional Volumes

-50/+0 Traffic Increase/Decrease (Compared to No-Build Model)

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Route 2 Improvement Study
Acton and Concord
2020 PM Peak Hour Model

Case Study 3

- **Concord Rotary Interchange**
- **Disconnecting Wetherbee Street**

LEGEND

200 / 400 — Estimated Directional Volumes

-50 / +0 — Traffic Increase/Decrease (Compared to No-Build Model)

N

Newton Rd
Nagog Hill Rd
Hayward Rd
Taylor Rd
Concord Rd
Pope Rd
Wetherbee St
Barrett's Mill Rd
Main St
Piper Rd
Hosmer St
School St
Central St
Stow St
Parker St
Laws Brook Rd
Comm. Ave
Baker Ave
Elm St
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2A
27
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